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Apeiron

Anaximander on Generation and Destruction



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Preface

Anaximander is famous for three things: ‘the boundless’, which he is said to have made the principle of everything; the surviving fragment of his book on those things that give recompense and pay restitution to each other for their injustice; and his conception of the Earth floating unsupported in space. In 1989, in my doctoral dissertation, I discussed the interpretation and translation of Anaximander’s fragment, whereas in my later work I have leaned towards concentrating on Anaximander’s cosmology. However, in all those years I have never really understood what could be meant by ‘the boundless as a principle of everything’. For example, an interpretation as current and influential as Kahn’s posits that ‘the ἄπειρον of Anaximander is then primarily a huge, inexhaustible mass, stretching away endlessly in every direction (...) the great cosmic mass encircling the spherical body of our star-studded heaven’, which ‘originally served as the ἀρχή or starting point in [the world’s] formation’ and ‘which must be such as to offer an inexhaustible store of creative power and material. He called this unknown world source τὸ ἄπειρον, ‘that which is inexhaustible’, and he identified it with the equally mysterious outlying body which holds the visible world in its embrace’.¹ But how do we imagine this alleged Anaximandean cosmic mass, lying outside our cosmos and yet serving as a reservoir for everything within it? I have tried to imagine this huge cosmic mass through the analogy of the all-pervading black matter of modern cosmology, which is also invisible but influences the whole cosmos by the gravitational force it originates. The more I have thought about this and other interpretations, the less I have been able to make sense of them, let alone the astonishing idea that such a bold metaphysical concept like ‘the boundless’ could have been thought at the very beginnings of philosophy, coming as it does

¹Kahn (1994, 233–237).

between such concrete thinkers as Thales and Anaximenes who are said to have taught that the principle of everything was either water or air. Another thing that has always bothered me is that several scholars assure us that the main concern of the early Greek philosophers was nature, and that accordingly their key word should be φύσις. However, this word does not seem to take a prominent place in the remaining texts of those early philosophers, with scholars also assuring us that the title of their works, περὶ φύσεως, was only given to their books much later.

In 2009, Zdeněk Kratochvíl and Radim Kočandrle invited me to give a number of lectures on Anaximander's cosmology at Charles University in Prague. There, I became acquainted with their ideas about the concept of nature in ancient Greek thinking and especially in Anaximander, a topic which Radim and I further discussed in email correspondence. In 1989, after a discussion of 'the boundless', I wrote (translated from the Dutch): 'Surveying the material discussed we may say that the ἄπειρον may be thought as a creative or procreative power', and ἄπειρος does not only mean "immense", but also "imperceptible".² Now, finally, I have begun to understand the full implications of these words. In *Heaven and Earth in Ancient Greek Cosmology* (2011), I formulated my first tentative lines of an interpretation that makes 'boundless' a predicate of 'nature' as the all-encompassing generative power.³ In 2013, Radim and I co-wrote an article, *Anaximander's Boundless Nature*, in which we further elaborated upon this interpretation, after which Radim persuaded me to write this book together with him. It is up to the reader to judge whether we have succeeded in clarifying to some degree one of the three issues that Anaximander is famous for, and whether he or she can agree with my conviction that we have formulated an interpretation of Anaximander's 'principle' that is both intelligible and makes sense, in spite of its contradiction of a long-standing understanding of Anaximander's metaphysics.

We have written this book in close cooperation and in continuous discussion. This holds also for the study of the intricacies of the development of nature in Anaximander, which is treated in the last three chapters, and which is mainly Radim's area of expertise. I hope we have even succeeded in throwing some new light on Anaximander's fragment B1, which is perhaps even more mysterious and harder to understand than his ἄπειρον.

This preface was written to explain why Radim Kočandrle, to whom I am very grateful for having shared his ideas with me, counts as the first author of our book.

Pilsen, Czech Republic

Dirk L. Couprie

²Couprie (1989, 147, 149–150).

³See Couprie (2011, 94–96).

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Abbreviations

- DK Diels, H. and W. Kranz, *Die Fragmente der Vorsokratiker*. Three volumes. Sixth edition. Zürich/Hildesheim: Weidmann 1951.
- DL Diogenes Laertius, *Lives of Eminent Philosophers*. Ed. and transl. R.D. Hicks. Two volumes. Cambridge, Mass.: Harvard University Press 1980.
- Dox Diels, H., *Doxographi Graeci*. Berlin: de Gruyter 1879.
- Gr Graham, D.W., *The Texts of Early Greek Philosophy*. Two Parts. Cambridge: Cambridge University Press 2010.
- KRS Kirk, G.S., J.E. Raven, and M. Schofield, *The Presocratic Philosophers*. Second edition. Cambridge: Cambridge University Press 2007.
- LSJ Liddell, H.G., R. Scott, H.S. Jones, and R. McKenzie, *A Greek-English Lexicon*. Ninth edition. Oxford: Oxford University Press 1996.
- TP1 Wöhrle, G., *Die Milesier: Thales*. Berlin: Walter de Gruyter 2009.
- TP2 Wöhrle, G., *Die Milesier: Anaximander und Anaximenes*. Berlin: Walter de Gruyter 2012.

Introduction

One of the best known and yet most enigmatic terms of philosophy is τὸ ἄπειρον, ‘the boundless’. τὸ ἄπειρον has always attracted the interest of scholars but for all that we still do not have a satisfactory interpretation of it. Without exaggeration we may say that τὸ ἄπειρον has resisted all attempts at explanation. This may be largely due to the fact that Anaximander himself does not seem to have said very much on the nature of his ‘principle’. Indeed, doxographers already complained about his failure to explain what he meant by τὸ ἄπειρον.⁴

It is said that Anaximander of Miletus used τὸ ἄπειρον with reference to ἀρχή, ‘source’ or ‘principle’. Investigations of the ἀρχή are often seen as the paradigmatic subject of archaic philosophy, and thus the effort to understand Anaximander’s ἀρχή could be a way of approaching the core of archaic thinking. Perhaps, the ancient concept that has found its expression in this word is somehow hidden behind later interpretations that are inspired by Peripatetic philosophical terminology.

We are well aware that all attempts at arriving at a better understanding of Anaximander’s principle have to follow in Aristotle’s footsteps. In his writings, τὸ ἄπειρον answers a question about the ἀρχή in the sense of a material cause. But this is a consequence of Aristotle’s own theory of nature and of his conceptual framework, which distinguishes four kinds of causes. To the archaic thinkers, he ascribes the investigation on primarily just one of these, namely ‘cause’ in the sense of a material principle. This conceptual shift led to a substantial misinterpretation of these Presocratic thinkers, as though they were searching for a ‘primordial matter’. They are taken, then, to be mutually distinguishable mainly by the particulars of the primordial stuff—usually one of the elements—that they allegedly proposed and advocated. Yet taking Aristotle’s particular perspective into account, we can try to find some remnants of the original concepts. One can suppose that Aristotle actually reacted to some aspect of theories proposed by thinkers of the

⁴See Aetius, *Plac.* I.3.3 = DK 12A14 = Gr Axr18 = TP2 Ar53; Simplicius, *In Arist. Phys.* 9.149.11–27 = TP2 Ar168 (not in DK and Gr); DL II.1 = DK 12A1 = Gr Axr1 = TP2 Ar92.

archaic period since the quest for the origin of everything was certainly relevant to them in their cosmogonic descriptions of the creation of the world and its order.

When during the classical period, philosophy, in the form of the Peripatetic school, started looking for its origins, this kind of search necessarily reflected the much later context in which it was grounded. We must thus realize that all texts about Anaximander which are at our disposal may be biased and may only reflect concepts of a later philosophy, with which Anaximander's thoughts in some way are associated. Moreover, Anaximander's situation is somewhat different from that of other thinkers. In most cases, we can try to interpret the ideas of ancient philosophers based on a somewhat broader range of authors who mention them in their works. Regarding the Milesians, however, extant texts *de facto* exclusively reflect the way the Peripatetics understood them. Yet Anaximander's thinking was certainly based on and reflected various sources, both contemporary and historic. The mediating tradition may, by its very nature, be ill-suited for the task, since given the supposed finitism of the Greek culture one may ask whether the very term τὸ ἄπειρον actually denotes a Greek concept.⁵ This does not exclude the concept from Greek thinking—since Melissus had already provided a positive definition of it—but the issue of possible Eastern influence remains open.⁶ After all, Miletus was at that time an important centre of international trade.

Various interpretations of Anaximander's principle have been proposed in numerous works of the past and, doubtless, new interpretations will appear in the future. According to Paul Seligman, each generation must rethink its concepts and attitudes again and again.⁷ In this monograph, we will propose a new interpretation of Anaximander's ἄπειρον, based on a thorough examination of available sources. Since so little of his book remains, it is hard to say which terms or phrases Anaximander might have actually used. We will argue that based on surviving texts the authenticity of the term τὸ ἄπειρον should be doubted or at least suspended. When we try to understand Anaximander's intentions, it is just an attempt at reconstructing an earlier conception that had been lost in newer theories. What Anaximander really said or meant has disappeared under layers of deposits of terms about which we cannot be certain to what degree their meanings correspond to possible archaic ones. Nevertheless, we think it is possible to try to present an outline of Anaximander's message. Particularly with regard to what is usually called 'the boundless', we think it is possible, to some extent, to guess at the original Milesian words, which will lead us to the argument that it makes sense to think that he said and meant something like φύσις ἄπειρος. Of course, in the texts of Aristotle and Theophrastus, the term φύσις has Peripatetic connotations, which can only serve as an illustration or a possible hint at the original meaning. Such considerations as presented in this book certainly go well beyond the textual

⁵In a list of Pythagorean opposites given by Aristotle, ἄπειρος is found as a *negative* term alongside σκότος, 'darkness', κακόν, 'evil', etc. (Aristotle, *Met.* 986a22–27).

⁶Cf. Burkert (1963, 118–119).

⁷Cf. Seligman (1962, 1).

evidence. In spite of this, and though it cannot be proven beyond doubt to what extent the phrase φύσις ἄπειρος corresponds to Anaximander's own words, the temptation to try to reveal what he meant to say will always remain irresistible.

Just a little must be said also about our use of terminology. In our interpretation, we will argue that Anaximander did not use the word as a noun but as an adjective, indicating a predicate of something else. We will also argue that what is predicated is 'nature', in some pregnant sense of the word. This will lead to what the reader may experience as a terminological inconvenience: when we quote or discuss other ancient or modern interpretations, we will, by necessity, frequently use τὸ ἄπειρον, meaning some type of separate substance or stuff. When we expose our own interpretation, we will use φύσις ἄπειρος, 'boundless nature' (in the pregnant sense), but also occasionally τὸ ἄπειρον, meaning 'that which is called boundless', as a kind of shorthand for φύσις ἄπειρος.

In our analysis, we will rely especially on previous studies on Anaximander's ἀρχή by the first author of this book, which have been published only in Czech (see Bibliography). Our book is widely based primarily on his previously published book in Czech (Kočandrle 2011a), in which the interpretation of τὸ ἄπειρον as φύσις ἄπειρος was already the central theme. More specifically, we abandoned the elaborate parts on possible oriental influences on Anaximander and adapted several chapters on Anaximander's explanation of generation in biologizing terms.

Classical authors are usually quoted from Diels/Kranz (1951) (DK). Unless expressly stated otherwise, translations of classical texts are taken from Graham (2010) (Gr). The most complete collection of the texts on the Milesians is now available in the two volumes by Wöhrle (2009, 2012) (TP1 and TP2). Texts from Aristotle and Simplicius, if not available in DK, are taken from Gr and TP, or if not available there, from the editions indicated in the bibliography.

Chapter 1

Archē

When Aristotle, in the first book of his *Metaphysics*, speaks of his predecessors, he mentions Thales of Miletus as the first representative of philosophy. Later, in the third century AD, Diogenes Laertius distinguishes two branches connected with the origin of philosophy. The older one was Ionian and started with Anaximander of Miletus, but is said to have received its name “because Thales, a Milesian and therefore an Ionian, instructed Anaximander”.¹ The other branch was Italian and started with Pythagoras. This distinction clearly overlooks various details, such as that doxographers do not agree about the birthplace of Thales (some reports claim he was a Phoenician) and the fact that Pythagoras, before leaving for Italy, was said to have been born and raised on the island of Samos. Surprisingly, Aristotle does not include Anaximander at all among the thinkers who preceded him. Yet modern scholars tend to see Anaximander as the founder of the entire philosophical tradition. This is largely because there is doxographical evidence that he wrote a philosophical treatise:

As far as we know, he is the first Greek who ventured to publish a written treatise on nature.²

Although only the well-known fragment DK 12B1, some turns of phrase and individual words have survived from this writing, Anaximander’s ideas can be traced to some extent from the reports of the doxography. Traditionally, his treatise is viewed as one of the first known works on the ‘investigation of nature’. We can suppose that he wrote in general about the world, its origin, and its development until the time in which he lived. It is thus reasonable to assume that it is a work that

¹DL I.13, Translation Hicks = TP2 Ar91, not in DK and Gr.

²Themistius, *Or.* 26.317c = DK 12A7 = Gr Axr5 = TP2 Ar120. See also DL II.2 = DK 12A1 = Gr Axr1 = TP2 Ar92, and *Suda*, s. v. Ἀναξίμανδρος = DK 12A2 = Gr Axr4 = TP2 Ar237.

started the Ionian tradition, and which subsequently came to be understood as philosophy.

We have already noted in the introduction that the best known aspect of Anaximander's thinking is his investigation of the ἀρχή, the 'beginning' or the 'principle'. Yet, apart from Anaximander's somewhat doubtful primacy,³ we have no direct evidence that the Milesians actually used the term. Nevertheless, we may infer from doxographical evidence that thinkers of the archaic period at least considered what it was *supposed* to denote an important issue. The term 'ἀρχή' is already Homeric. Usually, it is translated as 'beginning' or 'origin' in either a spatial or temporal sense, but it can also mean 'rule', 'dominion' or 'sovereignty'.⁴ Aristotle maintains that in all different meanings of 'cause' (αἴτιον), the sense of 'beginning' (ἀρχή) is always present:

Just like ἀρχή, αἴτια ('cause') can have a number of different senses, for all 'causes' are 'beginnings' (πάντα γὰρ τὰ αἴτια ἀρχαί).⁵

Aristotle distinguishes several meanings of the term ἀρχή, of which the most interesting in this context is:

the point from which a thing is first comprehensible (ὅθεν γνωστόν τὸ πρᾶγμα πρῶτον).⁶

Generally speaking, Aristotle uses the term ἀρχή frequently and with various technical meanings, but especially as denoting a 'principle'.⁷ In the *Metaphysics*, ἀρχή represents the first principle or the cause of being of things, and is also related to human knowledge. In the same sense, at the beginning of the second chapter of the first book of the *Posterior Analytics*, Aristotle explains that we gain knowledge when we identify the ἀρχαί or 'first principles' of that which has to be demonstrated.⁸ For the same reason, in his view, knowledge of the 'first principles' (τῶν ἐξ ἀρχῆς αἰτίων ἐπιστήμη) should be one of the fundamental subjects of the 'first philosophy'.⁹

In the first book of the *Metaphysics*, after stating that wisdom is the science that speculates about the first principles and causes (τῶν πρῶτων ἀρχῶν καὶ αἰτιῶν θεωρητική [sc. ἐπιστήμη]),¹⁰ Aristotle makes sure to show that his conception of this issue is a culmination of what his predecessors had already put forward:

For clearly they too recognize certain principles and causes, and so it will be of some assistance to our present inquiry if we study their teaching; because we shall either discover

³Simplicius, *In Arist. Phys.* 9.24.13 = DK 12A9 = Gr Axx9 = TP2 Ar163; Hippolytus, *Ref.* I.6.2 = DK 12A11 = Gr Axx10 = TP2 Ar75.

⁴Cf. Kahn (1994, 235–236) and LSJ, lemma ἀρχή.

⁵Aristotle, *Met.* 1013a16–17. Translation Tredennick, slightly adapted.

⁶Aristotle, *Met.* 1013a15. Translation Tredennick.

⁷Cf. Seligman (1962, 25).

⁸Aristotle, *An. post.* 71b19–23.

⁹Aristotle, *Met.* 983a24–25.

¹⁰Aristotle, *Met.* 982b9–10.

some other kind of cause, or have more confidence in those which we have just described. Of the first philosophers, the majority thought the principles of all things were found only in the class of matter. For that of which all existing things consist, and that from which they come to be first and into which they perish last – the substance continuing but changing in its attributes – *this*, they say, is the element and this the principle of existing things.¹¹

Aristotle, then, understands the inquiry of the first philosophers as merely a search for the ἀρχή in the sense of a material cause. Kirk points out that when this “single rigid analysis” is applied uniformly to his predecessors, the ἀρχή is seen as “solely, or primarily, the first (material) of his causes”.¹² This makes it much harder for us to properly understand archaic, and especially Milesian, philosophy. One can suppose that for thinkers of the archaic period, the search for the ἀρχή was crucial in questions of both cosmology (the study of nature) and cosmogony, meaning ‘beginning’. It might be argued that what is in fact hidden behind Aristotle’s interpretation is some articulation of a view that nature is not exhausted by its changes, that it is time and again ‘renewed’ and preserved by new generations.

In Aristotle’s rendition, there exists only one fundamental substance which has a material character. Everything is created from it and everything reverts to it. Creation and destruction are ultimately just changes in the category of the substance, since throughout the changes the substance itself persists *de facto* unchanged. And given that all that happens is just a change in the substance, there is, strictly speaking, no creation and no destruction:

Hence they believe that nothing is either generated or destroyed, since this nature (τῆς τοιαύτης φύσεως) always persists (...). For there is a certain nature (τινα φύσιν), either one or more than one, from which all other things are generated while this is preserved.¹³

This entire framework, however, seems to presuppose both Eleatic considerations about the impossibility of real coming to be and perishing as well as Parmenides’ attack against the commonly postulated notions of creation and destruction, which suggests that it is not a trustful rendition of original Ionian thinking.¹⁴

Even so, Aristotle’s approach became the standard for the existing tradition and therefore the Presocratics are usually regarded as thinkers who went ‘searching for the original substance’. Heraclitus of Ephesus offers an alternative to this kind of interpretation, as parts of his text were also preserved independently of the Peripatetic context. However, in the case of the Milesians, the situation is different because their opinions were mainly preserved in the writings of Aristotle and his student Theophrastus.

¹¹Aristotle, *Met.* 983b3–11 = Gr Ths15 (partly), not in DK and TP. Translation partly from Tredennick.

¹²KRS (2007, 90).

¹³Aristotle, *Met.* 983b12–19. Translation Tredennick, slightly adapted.

¹⁴Cf. Graham (2006, 65), who notes that this problem had already been pointed out by Cherniss (1935, 368) and Stokes (1963, 33–34).

As stated above, Aristotle claims in the first book of his *Metaphysics* that Thales of Miletus was ‘the originator of this kind of philosophy’:

All, however, do not agree on the number and nature of this principle, but Thales, the originator of this kind of philosophy, says it is water (...). There are some who think the men of very ancient times, long before the present era, who first speculated about the gods, also held this same opinion about nature. For they represented Oceanus and Tethys to be the parents of coming to be and the oath of the gods to be by water – Styx, as they call it. Now what is most ancient is most revered, and what is most revered is what we swear by. Whether this view of nature is really ancient and time-honoured may perhaps be considered uncertain; however, it is said (λέγεται) that this was Thales’ concerning the first cause.¹⁵

Thales is thus said to have believed water to be the main principle. In fact, Aristotle traces the emphasis on water as the original substance back to ancient times when Oceanus, Tethys (Homer, *Il.* XIV, 201) and Styx, which the poets called water (Homer, *Il.* XV, 37), were similarly seen as originators of creation. In this way, Thales is presented as a figure connected to an ancient tradition but also as one of the oldest thinkers about whom there is some sort of evidence. Aristotle clearly demonstrates the difficulty of any attempt to approach the ancient traditions. By using the impersonal λέγεται, he implicitly admits his reliance on secondary authorities.¹⁶

Anyone used to the commonly held chronology of Milesian thinkers which posits a sequence of Thales—Anaximander—Anaximenes would expect that after Thales, Anaximander would be mentioned as his ‘successor and student’. However, as already noted, Anaximander’s name does not appear anywhere in the text of the first book of the *Metaphysics*. Thales is followed by Anaximenes of Miletus and Diogenes of Apollonia, who are said to have believed air to be the main principle. Hippasus of Metapontum and Heraclitus of Ephesus, on the other hand, are said to have identified the principle with fire, Empedocles of Acragas with the four elements, and Anaxagoras of Clazomenae is said to have believed in an unlimited number of elements.

How is it possible that Aristotle fails to mention Anaximander? The first author has discussed possible explanations in detail elsewhere¹⁷ but in any case it needs to be admitted that in this particular book Aristotle provides no information about Anaximander’s ἀρχή. Even though, as a rule, scholars tend to hold that Anaximander’s ἄπειρον was linked with the ἀρχή, Aristotle does not offer support for such a claim. Certainly, it could be simply Aristotle’s accidental oversight. On the other hand, it may be an indication of some aspect in Anaximander’s thinking that dissuaded Aristotle from mentioning him in this context.

¹⁵Aristotle, *Met.* 983b19–22 and 983b27–984a4 = DK 11A12 (partly) = Gr Ths15 and Ths38 = TP1 Th29. Translation partly from Tredennick and slightly adapted. The last lines are missing in DK 11A12, one of them is in DK 1B10.

¹⁶Cf. Guthrie (1985, 45).

¹⁷Cf. Kočandrle (2011a).

Chapter 2

Apeiron: A Preliminary Understanding

In the fifty-four pages of the first chapter of his book *Infinity in the Presocratics*, Sweeney discusses “twenty-three noteworthy studies on Anaximander’s *to apeiron*”.¹ His book, however, is now more than fifty years old, and one may doubt whether his conclusion that “one possibly need not be concerned in detail with others which may come to light, since the twenty-three already investigated appear to cover the field very well”,² still holds (even if it perhaps could be defended at the time he wrote it). Moreover, although he groups several authors together, Sweeney’s chapter is rather an enumeration of interpretations and does not systematically distinguish different lines of interpretation. A thorough and up-to-date historic and systematic analysis of the many different interpretations of Anaximander’s ἄπειρον would be very helpful for the study of Anaximander’s principle.³ In this chapter, we try to sketch an outline of such a study, without having the least pretension of being complete. Most of the quoted texts and authors will be discussed more extensively in the following chapters.

Τὸ ἄπειρον is a noun in the neuter gender of the negative adjective ἄπειρος. The adjective ἄπειρος may connote ‘inexperienced’ and ‘ignorant’, of which we will refer to at the end of this chapter. Usually, however, it expresses a denial of borders: ‘boundless’, ‘infinite’. Etymologically, ἄπειρος is usually derived either from the word πέρας, or from πείρα, both in the sense of ‘limit’, ‘boundary’ or ‘end’. Charles Kahn has suggested a connection with the root *περ-, as in words such as πείρω, περάω, περαίνω, referring to a direction forward, where the

¹Sweeney (1972, 49).

²Sweeney (1972, 50).

³Mansfeld’s magnificent study (Mansfeld 2010), despite its title “Bothering the Infinite: Anaximander in the Nineteenth Century and Beyond”, focuses on (mainly one line, which he calls the ‘mystical, of) the interpretation of Anaximander’s fragment, rather than on the interpretation of ἄπειρον itself.

movement is also supposed to finish, and *πεῖρα* meaning ‘limit’ or ‘end’ in the sense of ‘goal’.⁴ Accordingly, the meaning of *ἄπειρος* should be verbal in the sense of ‘what cannot be passed over or traversed from end to end’ and thus ‘immense’ or ‘enormous’. Kahn argues that Homer and Hesiod called the Earth and the sea *ἀπείρων*, *ἀπείριτος*, *ἀπειρέσιος* and *ἀπερείσιος* but nevertheless spoke of their *πεύρατα*. In an analogous way, Kahn notes that the words *ἄπειρος* and *ἀπείρων* were not only used to describe circles, or rings, with the emphasis on their being uninterrupted or continuous, but also used in the context of nets and garments, meaning ‘without outlet’ or ‘past escape’. Kahn also points to Aristotle’s discussion of the word in his *Physics*, which is worth quoting here:

Let us begin, then, by inquiring in how many senses we use the term. If by saying that a thing has ‘no limit’ you mean ‘no boundary’, then you mean that its nature is such that it would be nonsense to speak of ‘passing through it from side to side’, just in the same way that a sound is ‘invisible’. But you might also mean that, though it is of such nature that you can traverse it, it does not admit (whether you are speaking absolutely or practically) of your getting ‘through’ it so as to come out beyond it. Or again you may mean that its nature would allow it to have a boundary such as to make it passable-through, but that in this case it has not. Again, the ‘absence of limit’ may mean capacity for being multiplied indefinitely, or for being divided indefinitely, or both.⁵

Aristotle thus describes τὸ ἄπειρον as ‘that which it is not possible to get through to the end of’ or ‘that which cannot be gone through’, that is, ἀδιέξοδος, which also may mean ‘having no outlet’ or ‘unable to get out’.⁶

After all, one may wonder how relevant Kahn’s etymology is for Anaximander, for in the end he states that “as a result of the philosophic usage that begins with Anaximander, the term is systematically opposed to *πέρας* and *πεπερασμένον* in such a way that it accumulates the senses of ‘unlimited’, ‘mathematically infinite’, ‘qualitatively indeterminate’ or ‘indefinite’”, and that “Anaximander probably defined τὸ ἄπειρον by opposition to *πέρας*”.⁷

In a mathematical context, τὸ ἄπειρον could be taken to refer to ‘the infinite’. To ascribe a similar meaning to Anaximander would be anachronistic since the subject of mathematical infinity came to be studied only later.⁸ As KRS points out, it is “uncertain that Anaximander himself intended τὸ ἄπειρον to mean precisely ‘the spatially infinite’”. We may legitimately doubt whether the concept of infinity was apprehended before questions of continuous extension and continuous divisibility were raised by Melissus and Zeno”.⁹

⁴Cf. Kahn (1994, 231–233). See also LSJ, s.v. *ἄπειρος*; *ἀπείρων*.

⁵Aristotle, *Phys.* 204a2–7. Translation Wicksteed and Cornford (1957).

⁶Aristotle, *Phys.* 204a14. Translations Wicksteed and Cornford (1957) and LSJ, s.v. ἀδιέξοδος. Kahn (1994), 233, reads ἀδιεξίτητος, which is used in Simplicius, *In Arist. Phys.* 9.470 and 9.471.

⁷Kahn (1994, 233 and note 1).

⁸Cf. Guthrie (1985, 85).

⁹Cf. KRS (2007, 109–110).

From the etymology and from Aristotle's analysis one might infer that the adjective ἄπειρος originally had spatial connotations, an idea which also prevails in the interpretations of most contemporary scholars. In this sense, Gottschalk contends that Anaximander chose the term ἄπειρον "precisely because it did not refer to the kind of substance but only to its vastness of extent".¹⁰

As a rule, these spatial connotations usually go hand-in-hand with material connotations, which indicate that τὸ ἄπειρον is usually conceived of as some kind of—unspecified—stuff. The Ionian interpretation of the ἀρχή as something material goes as far back as Aristotle and Theophrastus, who explained it as a kind of prime matter. However, since Cherniss' book and McDiarmid's article on Aristotle and Theophrastus on the Presocratics, scholars have learned to be on guard, since "Aristotle's accounts of earlier doctrines are so inextricably bound up with arguments for his own doctrine that history cannot be easily distinguished from interpretation", and as regards Theophrastus: "in almost every instance the meaning of the quotation [of a text of a Presocratic] is distorted to yield proof of an Aristotelian interpretation that is clearly impossible".¹¹ These statements may be too apodictic, but they still function as warning signs for the interpretation of Presocratic philosophy. With regard to Anaximander's ἄπειρον, we shall devote a chapter of this book to both Aristotle and Theophrastus.

Spatial interpretation and material connotations of Anaximander's ἄπειρον are often closely associated with the idea of an inexhaustible reservoir, "a source [that] is required for the sustenance of the world".¹² In this sense, Graham, who subscribes to Kahn's characterization of Anaximander's boundless as 'a spatially unlimited stuff', adds the possibility of seeing the boundless as "a kind of reservoir which assures that the particular kinds of matter will never run out".¹³ This, too, goes back to Aristotle. Just before mentioning Anaximander, he observes:

(...) there is no source of the infinite, but this seems to be a source of everything else, and to surround all things and steer all things.¹⁴

And immediately thereafter, when citing the third of five reasons for the supposition of something infinite in words that remind us of those used in Anaximander's fragment (or, as others would say, of words preceding Anaximander's fragment), he writes:

The belief in something boundless (τὸ ἄπειρον) would seem to arise especially from five considerations: (...) [3] from the fact that only in this way will coming to be and perishing not cease: so long as that from which what comes to be proceeds is boundless.¹⁵

¹⁰Cf. Gottschalk (1965, 53).

¹¹McDiarmid (1953, 86, 132–133).

¹²Kahn (1994, 233).

¹³Cf. Graham (2006, 31 and 34), our italics.

¹⁴Aristotle, *Phys.* 203b6–28 = DK 12A15 = Gr Axr16 = TP2 Ar2.

¹⁵Aristotle, *ibidem*, translation slightly adapted.

That Anaximander conceived of τὸ ἄπειρον as a kind of reservoir of matter that surrounds all things has become a kind of standard view and one that has been defended by numerous scholars. Heidel describes it as “ἀρχὴ καὶ πηγὴ lying about the world, from which it drew its sustenance (‘breath’), into which it finally yielded up the ‘ghost’.”¹⁶ Burnet visualizes τὸ ἄπειρον as a “boundless stock from which the waste of existence is continually made good”, before adding that “we must picture, then, an endless mass, which is not any one of the opposites we know, stretching out without limit on every side of the world we live in. This mass is a body, out of which our world once emerged, and into which it will one day be absorbed again”.¹⁷ Similarly, Jaeger also describes τὸ ἄπειρον as an “endless, inexhaustible reservoir or stock”.¹⁸

This view intermingles with the question of the location of τὸ ἄπειρον, which is frequently positioned outside of the world. Cornford points in the same direction, suggesting that τὸ ἄπειρον “remains outside the world as the ‘eternal’ background of the cycle of change and becoming”.¹⁹ Guthrie concurs, supposing that Anaximander “certainly regarded the *apeiron* as an enormous mass surrounding (...) the whole of our world”.²⁰ To these comments, we can also add Kahn’s: “the ἄπειρον of Anaximander is then primarily a huge, inexhaustible mass, stretching away endlessly in every direction (...) the great cosmic mass encircling the spherical body of our star-studded heaven”.²¹ Perhaps this kind of interpretation is also influenced by Anaxagoras’ phrase:

That which surrounds [the world] is boundless (ἄπειρον) in quantity.²²

The boundless lying outside the world has become the mainstream interpretation, which is only occasionally nuanced, for instance, by Bicknell, who states that “the *apeiron* was a vast expanse with no other characteristics, the pre-existent matrix of the other world constituents”. When interpreting the conception of τὸ περιέχον he supposes “that at least a portion of the *apeiron* is, like Anaximenes’ *aer*, within the single universe and not entirely beyond the orbit of the furthest (Sun-) ring” and that it “refer(s) to the internal environment in which the cosmic bodies are located.”²³ As will become clear in the subsequent chapters of this book, we are strongly opposed to both the interpretation of τὸ ἄπειρον as a kind of matter and to the interpretation of τὸ ἄπειρον as being outside the world.

¹⁶Cf. Heidel (1912, 228).

¹⁷Cf. Burnet (1930, 53, 58).

¹⁸Cf. Jaeger (1947, 24).

¹⁹Cf. Cornford (1952, 171).

²⁰Cf. Guthrie (1985, 85).

²¹Kahn (1994, 233–237).

²²Simplicius, *In Arist. Phys.* 9.155.30 = DK 59B2 = Gr Axx11. Translation slightly adapted.

²³Bicknell (1966, 44 and 37–38).

But let us continue our investigation of the meaning of the term ἄπειρος a little further. Several authors have read it as referring to something qualitatively indeterminate. In this interpretation, τὸ ἄπειρον becomes, as Graham says, “some kind of nondescript stuff as the basis of the world”.²⁴ Guthrie, for instance, ends his analysis of the meaning of ‘apeiron’ with the conclusion that of the several senses, “the notion of internal indeterminacy rather than of spatial infinity was uppermost in his mind”.²⁵ In the doxography we can find textual support for this interpretation, where the kinds of principles belonging to Thales and Anaximenes are called ‘determinate’ or ‘definite’ in opposition to Anaximander’s:

Anaximenes (...) was an associate of Anaximander, who says, like him, that the underlying nature is single and boundless, but not indeterminate (ἀόριστον), like him, but determinate (ὁρισμένην) (...).²⁶

Wöhrle reads this text as merely indicating that Anaximander left the meaning of his idea of ‘the boundless’ undetermined (“undefiniert”). In this case, it would infer something similar to those texts in which doxographers complain that Anaximander did not make clear what he meant by ‘the boundless’.²⁷ We think, however, Wöhrle’s translation of ἀόριστον as “undefiniert” is not right. Elsewhere, Simplicius uses the same word when discussing Theophrastus, who links Anaximander’s ‘boundless’ with Anaxagoras’ ‘mixture’, which he calls “a single nature indefinite” (μίαν φύσιν ἀόριστον).²⁸ Here, too, Wöhrle translates “undefiniert”, whereas Graham rightly twice has “indefinite”. Simplicius clearly does not mean to say that Anaxagoras and Anaximander left their principles undefined, but that their principles are themselves intrinsically indeterminate. Dührsen argues that in its primary meaning τὸ ἄπειρον stands for a qualitatively indifferent material substratum, but that in this context the expression must be seen against the background of the Aristotelian doctrine of the four elements which serve as an interpretive means (“ein Interpretament”) of Peripatetic doxography.²⁹

Gottschalk and Dancy have vehemently argued that the term ἄπειρον never originally carried or could carry the meanings of ‘qualitatively indeterminate’ or ‘indistinct’.³⁰ Gottschalk concludes that “there is not a scrap of evidence that the word could have this meaning”.³¹ Dancy maintains that “there is a longstanding

²⁴Cf. Graham (2006, 30).

²⁵Guthrie (1985, 86).

²⁶Simplicius, *In Arist. Phys.* 9.24.26 = DK 13A5 = Gr Axs3 = TP2 Ar163 = TP2 As133, translation slightly adapted. A similar text in Simplicius, *In Arist. De caelo* 7.615.8–21 = TP2 Ar192, not in DK and Gr.

²⁷See *Introduction*, note 4.

²⁸See Simplicius, *In Arist. Phys.* 9.27.2–23 = DK 59A41 = Gr Axx32 = TP2 Ar164 and 9.154.14–23 = DK 12A9a = Gr Axr15 = TP2 Ar170. We will discuss these passages in Chap. 4 more thoroughly.

²⁹See Dührsen (2013, 274–277).

³⁰Cf. Gottschalk (1965, 51–52), Dancy (1989, 170–172).

³¹Gottschalk (1965, 51).

dogma to the effect that something else that is meant when Anaximander says his ἀρχή is τὸ ἄπειρον is that it is qualitatively indefinite, indeterminate or at least undifferentiated.”³² According to him, this dogma can be traced back to Teichmüller³³ but appears in the interpretations of several recent scholars as well, among which he mentions Cornford, KRS, Kahn, Guthrie, Barnes, West and Furley.³⁴

Graham agrees with Gottschalk and Dancy that ‘boundless’ could never have meant ‘indeterminate’, but he still leaves the door somewhat open: “We may be justified in inferring from Anaximander’s failure to define his boundless further that it is an indeterminate stuff, but that will be an inference from his use of the term, not a meaning of it”.³⁵ We will return to this subject in Chap. 4.

Given Anaximander’s explanation of creation by a separation of opposites, τὸ ἄπειρον has also been interpreted as referring to an initial mixture (μῦγμα). Again in Guthrie’s words: “A primitive stuff must be, so to speak, a neutral in these hostilities, and must therefore have no definite characteristics of its own”.³⁶ This interpretation, which is akin to the above-discussed idea of a qualitatively indifferent principle, also goes back to Aristotle:

As the natural philosophers maintain, there are two ways [to account for change]. Some (...). The others separate out (ἐκκρίνεσθαι) the contraries from the one in which they are present, as does Anaximander, and everyone who says there is a one and a many, such as Empedocles and Anaxagoras. For from the mixture they too separate out everything else.³⁷

Cherniss reads this interpretation in Anaximander’s fragment B1, in which the plurals ὄν ... ταῦτα should “refer to the ἄπειρον and imply that the material principle of existing things is not a single entity but a multitude of some kind”.³⁸ Vlastos argues that in accordance with the doctrine of κρᾶσις in the medical writings of the fifth century BC, Anaximander’s τὸ ἄπειρον, as a compound of opposites, must be considered as a state of dynamic equilibrium (ἰσονομία). It is ‘one’ because “it does ‘contain’ the ‘opposites’; but these are so thoroughly mixed that none of them appear as single, individual things”.³⁹

Stokes is one of those who maintain that “the word ‘infinite’ in Presocratic Greek can of course mean *temporally* infinite”.⁴⁰ We already saw that Gottschalk and Dancy argued to the contrary, but in the doxography on Anaximander, τὸ

³²Dancy (1989, 170).

³³Cf. Teichmüller (1874, 57).

³⁴Dancy (1989, n. 158, 159, 161).

³⁵Graham (2006, 30).

³⁶Cf. Guthrie (1985, 86 and 120).

³⁷Aristotle, *Phys.* 187a12–23 = DK 12A9 and 12A16 = Gr Axr13 = TP2 Ar1. The first sentence does not appear in DK.

³⁸Cf. Cherniss (1935, 375–379).

³⁹Cf. Vlastos (1947, 172); in Furley and Allen (1970, 79).

⁴⁰Stokes (1976, 12).

ἄπειρον undoubtedly also has a temporal connotation, since as ἀρχή it is said to be ‘everlasting and ageless’, qualifications which Diels regards as authentic:

And this (viz. the ἀρχή considered as ‘a certain nature of the boundless’) is everlasting (ἄιδιον) and ageless (ἀγήρω).⁴¹

This passage seems to be an echo of Aristotle, who calls Anaximander’s ἀρχή ‘deathless and imperishable’, which words Diels also considers authentic. These epithets originally belong to the gods, and accordingly Aristotle also calls it ‘divine’:

And this (viz. the ἀρχή) is the divine (τὸ θεῖον), for it is deathless (ἀθάνατον) and imperishable (ἀνώλεθρον), as Anaximander says (...).⁴²

In one passage, τὸ ἄπειρον even seems to be identified with the everlasting (in Chap. 5, however, we will suggest another reading for ἐκ τοῦ ἀδίου):

He (viz. Anaximander) says that that part of the everlasting (τὸ ἐκ τοῦ ἀδίου) which is generative of hot and cold separated off at the coming to be of the cosmos (...).⁴³

Another meaning of this term, proposed by Finkelberg, deserves to be mentioned. Despite Aristotle’s and Simplicius’ unambiguous statements that Anaximander’s ἄπειρον is not one of the so-called elements,⁴⁴ Finkelberg, in a highly complicated article in which he pretends to unravel “Anaximander’s conceptual subtleties”, comes to the “unavoidable conclusion” that “in his conception of the *Apeiron* Anaximander combined two different, actually incompatible, ideas—the unchangeable ‘whole’ and the airy *arche*”, although he “failed to draw a clear-cut distinction between the higher nature of the *Apeiron* and its material appearance as air”.⁴⁵

Several authors have suggested possible Oriental influences on Anaximander’s thinking. According to Burkert, quoted with approval by West, the indication of the origin by means of a negative formula (ἄ-πειρον) must be clarified from the ancient Iranian, and not from the Greek tradition: “Im Griechischen führt kein Weg vom ἄπειρον zum θεῖον”.⁴⁶ He advocates a connection with the ‘Beginningless Light’ in the liturgy of the Avesta, which is paradise, the throne of Ahura Mazdāh (=Ohrmazd).⁴⁷ Fehling sees connections between Anaximander’s cosmogony and the doctrine of two elements (earth and water) in the story of creation in the Bible

⁴¹Hippolytus, *Ref.* I.6.1 = DK 12A11 = DK 12B2 = Gr Axr10 = TP2 Ar75.

⁴²Aristotle, *Phys.* 203b14–16 = DK 12A15 = DK 12B3 = Gr Axr16 = TP2 Ar2.

⁴³Pseudo-Plutarch, *Strom.* 2 = DK 12A10 = Gr Axr19 = TP2 Ar101; translation slightly adapted.

⁴⁴Cf. Aristotle, *Phys.* 204b22 = DK 12A16 = Gr Axr17 = TP2 Ar3; Simplicius, *In Arist. Phys.* 9.479.33 = TP2 Ar176, not in DK and Gr.; Simplicius, *In Arist. Phys.* 9.24.13 = DK 12A9 = Gr Axr9 = TP2 Ar163. These texts will be discussed in the following chapter.

⁴⁵Finkelberg (1993, 255, 254, and 253).

⁴⁶Burkert (1963, 118–119).

⁴⁷Cf. Burkert (1963, esp. 115). See also: West (1971, 91).

and in Sanchuniathon's cosmogony. He denies, however, that Anaximander had a principle like τὸ ἄπειρον.⁴⁸ Lebedev, in an article to which Fehling refers but from which Lebedev later disassociates himself, suggests Oriental influences, arguing that Anaximander spoke of 'boundless Time'.⁴⁹

There are two interesting studies that are important for our own interpretation and that we might call 'vitalistic'. Asmis argues that "the everlasting deity which is the *apeiron* (...) is one with the endlessly repeated alternation of generated things", or more fully, "the unending succession of generation and destruction (...) this is the *apeiron* itself".⁵⁰ And elsewhere, "the principle of justice itself brings about that the process is unlimited—in other words, that there is an *apeiron*".⁵¹ In the chapter *La 'physis'* of his book on Anaximander, Conche claims that for the Ionian physicists the word φύσις meant "l'action de faire naître et pousser".⁵² In the same chapter he seems to identify Anaximander's ἄπειρον with φύσις: "un autre nom pour l'infini est φύσις, la nature",⁵³ for which he finally coins the expression "force vitale infinie".⁵⁴ To be sure, Conche is critical as to an "interprétation vitaliste", which he defines as maintaining that Anaximander's ἄπειρον should be "un être vivant".⁵⁵ This is, however, a somewhat narrow definition of 'vitalism'. In a broader sense, Conche's "force vitale infinie", which will be discussed more extensively in Chap. 6, definitely may be called a vitalistic principle.

In this preliminary discussion we have quoted a number of passages that we will examine later on more thoroughly. At this stage, perhaps the best preliminary conclusion is that the term ἄπειρος may have carried a number of meanings simultaneously.⁵⁶ The question remains, however, which of these was predominant in Anaximander's thinking. The multitude of interpretations of Anaximander's principle is certainly due to the fact that so little is left of his original writings. There is reason, however, to suppose that it is also due to an inherent feature of Anaximander's style of writing, which Simplicius characterizes as 'poetic'. The classical authors whose texts are at our disposal more or less agree that Anaximander himself did not determine the meaning of τὸ ἄπειρον. Aetius, in words that have been conserved by Pseudo-Plutarch and Eusebius, and in a shortened form by Stobaeus, criticizes Anaximander for not stating what τὸ ἄπειρον is:

⁴⁸Cf. Fehling (1994, passim).

⁴⁹Cf. Lebedev (1978).

⁵⁰Asmis (1981, 279 and 283).

⁵¹Asmis (1981, 284). For similar formulations, see also pp. 295–279.

⁵²Conche (1991, 81).

⁵³Conche (1991, 82 and 128).

⁵⁴Conche (1991, 138).

⁵⁵Cf. Conche (1991, 142–143).

⁵⁶Cf. Couprie (2011, 90–91), Dancy (1989, 171–172), Gottschalk (1965, 51–52), Graham (2006, 29–30), KRS (2007, 109–111).

But he fails by not saying what the boundless is, whether air, water, or earth, or some other bodies.⁵⁷

And in the same sense Diogenes Laertius notes:

Anaximander (...) maintained that the principle and element is the boundless, without defining (οὐ διορίζων) it as air or water or something else.⁵⁸

A similar reproach is found in Simplicius, who claims that according to Porphyry Anaximander failed to define τὸ ἄπειρον:

Porphyry, however, (...) says that Anaximander characterized the substratum in a vague way (ἄδιορίστως) as boundless, without defining (οὐ διορίζαντα) its shape as fire, water, or air.⁵⁹

The way in which these reproaches are put into words reveals that from the very beginning, Anaximander's intentions were distorted because they were interpreted within the conceptual framework of Aristotle's philosophy. And, as we shall see in the next chapter, even Aristotle clearly had difficulties in understanding Anaximander. The very fact that he does not mention Anaximander in the first book of his *Metaphysics*, where he ascribes various particular ἀρχή to his predecessors, is significant. On the other hand, of course, everything we know about Anaximander is what Aristotle, his pupil Theophrastus and the doxography that is dependent on them tell us. According to Diogenes Laertius, Anaximander's treatise was seen by Apollodorus of Athens; thus, we may assume that in all plausibility it was available to members of the Peripatetic school as late as the second century BC.⁶⁰ Its presence in the library of the Hellenistic gymnasium in Taormina, Sicily further supports this assumption.⁶¹ In the next two chapters we will try to carefully re-read what the texts may reveal about Anaximander's ἄπειρον. But before that, two other and much neglected issues regarding the use and meaning of the word ἄπειρος will consume our attention.

There is a legitimate and interpretatively significant question whether Anaximander made τό, the article in the neuter gender, precede the adjective ἄπειρον, turning it into a noun.⁶² Similarly, neither is it attested by either Homer or Hesiod, nor in any direct fragments of thinkers of the archaic period. In the works of the Eleatic philosophers, in particular Zeno and Melissus, though, the issue of infinity plays a crucial role: the word ἄπειρον appears only as a predicate, for

⁵⁷Aetius, *Plac.* I.3.3 = DK 12A14 = Gr Axr18 = TP2 Ar53 = Eusebius, *Praep. evan.* 14.14.2 = TP2 Ar103; cf. Stobaeus, *Anthol.* 1.1.29b = TP2 Ar143, see Dox 277.

⁵⁸DL II.1 = DK 12A1 = Gr Axr1 = TP2 Ar92. Translation slightly adapted.

⁵⁹Simplicius, *In Arist. Phys.* 9.149.15–17 = TP2 Ar168, not in DK and Gr; our translation.

⁶⁰Cf. DL II.2 = DK 12A1 = Gr Axr1 = TP Ar92.

⁶¹Cf. Blanck (1997).

⁶²It would be interesting to consider in this context the use of the article in archaic Greek in general, as, for instance, in Snell (1955, Chap. 12, 299 ff). Here, however, we confine ourselves to the question whether Anaximander did use ἄπειρον only as a predicate and not in the substantive form τὸ ἄπειρον.

example, in describing ‘boundless things’, ἄπειρα τὰ ὄντα, or when speaking about what there is.⁶³ It is also noteworthy that the term τὸ ἄπειρον does not appear in Melissus’ fragments but only in Simplicius’ paraphrases of them.

In the fragments of Philolaus of Croton in the second half of the fifth century BC, we find the following pair in plural: ἄπειρα – περαίνοντα, ‘unlimiteds and limiters’.⁶⁴ The pair τὸ ἄπειρον – τὸ πέρας in singular, on the other hand, is attested only in much later writings by Aetius.⁶⁵ The first pair of the ten alleged ἀρχαί, which Aristotle ascribes to the Pythagoreans, reads: πέρας καὶ ἄπειρον.⁶⁶ Even though in both cases the articles are missing, the words are clearly used here as nouns. It is only later that Plato, especially in his *Philebus*, starts to ordinarily use the term τὸ ἄπειρον to express ‘the boundless’ (or infinity) as such. Aristotle, who himself uses τὸ ἄπειρον in this substantivized form, frequently claims that only the Pythagoreans and Plato believed the boundless to be a substance.⁶⁷ We may understand this to mean that the Pythagoreans and Plato used the substantive form of the original adjective ἄπειρος. It is worth noting that all three held the word ‘infinity’ to carry a negative undertone, associated with imperfection: the Pythagoreans put it at the head of the list of negative ἀρχαί; Plato maintained that the infinity of individuals or numbers created infinite ignorance (or indefinite thought);⁶⁸ and for Aristotle the infinite was always potential, never actual.⁶⁹ In this connection, Lebedev rightly wonders whether it is likely that this abstract term, which appears for the first time in the work of Plato, was ever used by Anaximander in the archaic period.⁷⁰

The formation of nouns in general is related to the issue of independent qualities treated independently of particular things. In this regard, Cherniss notes that not until Plato’s time were qualities known as such. Instead, they were seen as inseparable characteristics of particular things, as in the case of τὸ θερμὸν, which does not mean ‘heat’ in the sense of a separable quality but rather denotes a particular thing that is warm.⁷¹ In this context, Guthrie refers to a passage from Plato’s *Theaetetus* (182a–b) where substance (e.g., ‘warmth’) and attribute (e.g., ‘warm’) are clearly distinguished, but in which the unusual nature of the term

⁶³See, e.g., Simplicius, *In Arist. Phys.* 9.140.34 = DK 29B1 = Gr Zno7; 9.140.27 = DK 29B3 = Gr Zno13; 9.29.22–26; 9.109.20–25 = DK 30B2 = Gr Mls10; 9.109.31 = DK 30B3 = Gr Mls11; 9.110.3 = DK 30B4 = Gr Mls12; 9.111.18 = DK 30B7 = Gr Mls15; Simplicius, *In Arist. De caelo* 7.557.16 = DK 30B6 = Gr Mls14.

⁶⁴See DL VIII.85 = DK 44B1 = Gr Phs7; Stobaeus, *Anthol.* 1.21.7a = DK44B 2 = Gr Phs8; 1.21.7d = DK44B6 = Gr Phs11.

⁶⁵Cf. Aetius, *Plac.* I.3.10 = DK 44A9 = Gr Phs9.

⁶⁶Cf. Aristotle, *Met.* 986a24 = DK 58B5, not in Gr.

⁶⁷Cf. Aristotle, *Phys.* 203a3–18.

⁶⁸Cf. Plato, *Philb.* 17e3–5.

⁶⁹Cf. Aristotle, *Phys.* 207a21–23.

⁷⁰Cf. Lebedev (1978, I, 43–44).

⁷¹Cherniss (1951, 325).

ποιότης, ‘property’, ‘quality’ or literally ‘howness’ and its use in a general sense is also commented upon.⁷²

Quite another interpretative possibility comes into play when we take into consideration another word ἄπειρος (the negation of πείρα, ‘trial’, ‘attempt’), meaning ‘inexperienced’, but also ‘not acquainted with’ (ἐν πείρᾳ γίγνεσθαι means ‘to be acquainted with’) or ‘ignorant’.⁷³ Tannery⁷⁴ is the first modern scholar who suggest that Anaximander may have used it in its passive form, meaning ‘that which is not experienced’, ‘not sensible’, or even ‘that which cannot be experienced’. The passive form of this ἄπειρος is not documented elsewhere in the literature but is grammatically correct. We could render this passive use of ἄπειρος by the unusual but also grammatically correct term ‘unexperienced’. Drozdek notes this etymology but misses Tannery’s point that its *passive* meaning could be important for the interpretation of Anaximander’s use of ἄπειρος.⁷⁵ Tannery points to its twin ἀπείρατος, for which the passive use is documented. He suggests that the passive meaning of ἄπειρος was no longer understood since Melissus argued for the idea of infinity.⁷⁶

Apparently independently, Tumarkin suggests something similar in advocating this meaning for Anaximenes’ air as well, as a “nähere Bestimmung des ‘Unerfahrbaren’ (ἄπειρον) als das nicht Wahrnehmbare”.⁷⁷ She points not only to other words formed with α-, such as ἄτεχνος (“wo die Kunst fehlt, kunstlos”), but also to the opposite of ἄπειρος, ἔμπειρος (“erprobt, geschickt behandelt”) and to ἔντεχνος (“kunstvoll”).⁷⁸ Tumarkin suggests that in this meaning the word is used in the neuter, ἄπειρον, but this is a needless limitation.⁷⁹ In his Inaugural-Dissertation, Lumpe, following a hint from Eggermann, proposes this translation in connection with Xenophanes.⁸⁰

We would suggest that the Presocratic cosmologists, who did not yet use the word ἄπειρος in the technical sense of ‘infinite’ (which became its exclusive meaning in the thinking of the Pythagoreans, Plato and Aristotle), still retained both meanings in their usage of it.⁸¹ To amend Kahn’s words: this is perhaps because most commentators were so fascinated by the concept of *das Unendliche* as the source of all that exists that they never seriously considered the possibility that when the ancient Greeks used the word ἄπειρος the notion of ‘unexperienced’

⁷²Cf. Guthrie (1985, 79). See also Lebedev (1978, I, 44–45).

⁷³Cf. LSJ, lemmata ἄπειρος and πείρα.

⁷⁴Tannery (1904).

⁷⁵Cf. Drozdek (2008, 19).

⁷⁶Tannery (1904, 707).

⁷⁷Tumarkin (1943, 56–8).

⁷⁸Tumarkin (1943, 56, n. 1).

⁷⁹Tumarkin (1943, 56).

⁸⁰Lumpe (1952, 38).

⁸¹Tannery (1904, 704) even suggests that the two words might have the same root, although he admits it is less probable.

played a background role.⁸² One might even say that after all there is not so much difference in meaning between the two homonymic words ἄπειρος. That which is boundless or infinite is, as such, beyond our experience.

Actually, without noticing it, for several scholars the notion of ἄπειρος as ‘unexperienced’ or ‘beyond our experience’ is part of the interpretation of ἄπειρος as ‘the boundless’. Tannery observes that it fits well with the interpretation of Anaximander’s principle of that which is ‘indeterminate’ (ἀόριστος),⁸³ as given in Simplicius’ commentary:

Anaximenes, son of Eurystratus, of Miletus, was an associate of Anaximander, who says, like him, that the underlying nature is single and boundless, but not indeterminate (ἀόριστος) as he says, but determinate.⁸⁴

And elsewhere, quoting Theophrastus:

And if anyone supposes the mixture of all things to be a single nature indefinite (ἀόριστος) in both kind and size (...) just like Anaximander (...) ⁸⁵

In Kahn’s recent rendering of ‘boundless’ as ‘what cannot be passed through to the end’, he actually means that it is *beyond the capacities* of mortals, but not beyond those of gods like Hera.⁸⁶ Obviously, Kahn searches for a rendition of the word ‘boundless’ without the mathematical connotations of ‘infinite’. His definition ‘what cannot be passed through the end because it is beyond the capacities of mortal beings’ is not too far away from ‘what is beyond our experience’. In Kahn’s still influential interpretation, the conception of the ἄπειρον “as the great cosmic mass encircling the spherical body of the star-studded heaven”, is typically something ‘unexperienced’.⁸⁷ Accordingly, Kahn calls it “some more permanent source that is *partially or wholly unknown to us*” and “this *unknown* world source”.⁸⁸ What the insertion of ‘partially’ before ‘wholly unknown’ means is not clear to us, for this alleged body or mass surrounding the world is as much beyond our experience as are the infinite worlds of the atomists. Another example is West: “earth, sea, sky, and Tartarus (...) Anaximander says that they have their sources in a boundless *Beyond*”.⁸⁹ Yet another example comes from Freeman, who writes: “for though the Non-Limited was material and therefore perceptible, *it was removed from our perceptions by being out of reach*”.⁹⁰ Recently, Graham has explicitly noted: “the boundless remains outside the cosmos, surrounding and controlling it in some fashion, but it is not, so far as Anaximander tells us, in our world. It is forever

⁸²Cf. Kahn (1994, 168).

⁸³Tannery (1904, 706–7).

⁸⁴Simplicius, *In Arist. Phys.* 9.24.13–25.1 = DK 13A5 = Gr Axs3 = TP2 Ar163.

⁸⁵Simplicius, *In Arist. Phys.* 9.154.14–23 = DK 12A9a = Gr Axr15 = TP2 Ar170.

⁸⁶Kahn (1994, 232) (our italics).

⁸⁷Kahn (1994, 234).

⁸⁸Kahn (1994, 237), our italics.

⁸⁹West (1971, 78 and 79).

⁹⁰Freeman (1966, 56), our italics.

inaccessible and mysterious, beyond empirical scrutiny".⁹¹ It should be noted that although these authors do not even mention that there are two different words ἄπειρος, they nevertheless interpret 'boundless' as 'beyond our experience'. These examples could be multiplied easily by quoting other authors on Anaximander's ἄπειρον.

⁹¹Graham (2006, 31 and 34), our italics.

Chapter 3

Apeiron According to Aristotle

Of all the authors who refer to Anaximander, Aristotle was closest to the Milesian in time and, therefore, his reports must be considered important. The way Aristotle looks upon the early Ionian philosophers is based upon the conviction of them having a material principle:

Of the first philosophers, the majority thought the principles of all things were found only in the class of matter (ἐν ὅλης εἶδει). (...) Thales (is) the originator of this kind of philosophy (...).¹

Here, Aristotle presupposes his own philosophy of nature, in which he distinguishes four principles or causes, one of which is ‘matter’. This is also relevant for his interpretation of ‘the boundless’:

In the four-fold scheme of causes, it is plain that the boundless (τὸ ἄπειρον) is a cause (αἰτίον) in the sense of matter (ὡς ὅλη), and it is also clear that the boundless [is not something in and by itself, but an attribute of something else, and more precisely] a negative attribute (στέρησις). That of which it is an attribute (τὸ δε καθ’ αὐτὸ ὑποκείμενον) is the sensible continuum. All other thinkers, too, have treated the boundless as matter (...).²

In Aristotle’s entire corpus we find only four places in which Anaximander is expressly referred to. Aristotle mentions him twice in the *Physics* and once in the *Metaphysics*. A passage from the treatise *De caelo* concerns the issue of the motionless position of the Earth at the center of the universe, which we shall leave aside.³ The first of the references in the *Physics* is related to Aristotle’s distinction

¹Aristotle, *Met.* 983b6 and 983b21 = DK 11A12 = Gr Ths15 = TP1 Th29 (partially). Translation slightly adapted.

²Aristotle, *Phys.* 207b34–209a11 = DK 12A14 = TP2 Ar4, not in Gr. Translation after Seligman (1962, 25) and Wöhrle, who also inserted the explanatory words between brackets.

³Aristotle, *De caelo* 295b12 = DK 12A26 = Gr Axr21 = TP2 Ar6.

of various manners of creation which were allegedly proposed by the ‘natural philosophers’. He distinguishes two groups of natural philosophers in the passage we quoted in the preceding chapter:

As the natural philosophers maintain, there are two ways [to account for change]. Some make the underlying body one (ἓν), one of the three elements or something else which is denser than fire but finer than air, and they generate the other things by condensation and rarefaction so as to produce a plurality (...). The others separate out the contraries from the one in which they are present, as does Anaximander, and everyone who says there is one and a many, such as Empedocles and Anaxagoras. For from the mixture (ἐκ τοῦ μίγματος) they too separate out everything else.⁴

In this text Aristotle clearly frames those thinkers that he calls ‘natural philosophers’, including Anaximander, against the background of the theory of the elements, including a rather mysterious in-between element. It is noteworthy that Anaximander is said to belong to the second group together with Empedocles and Anaxagoras, who start generation from a mixture of elements, and not to the first group, where one could probably include the other Milesians, who start generation from one element.

Before we continue our analysis of the passage from the *Physics*, we will pay attention to one influential interpretation of τὸ ἄπειρον based on the theory of the elements. In various places in his writings, Aristotle mentions an element or something that should be placed between (τὸ μεταξὺ, τὸ μέσον) two other elements. On the issue of the ‘element in between’ Aristotle is far from consistent. It even seems as if there could be three such in-between elements, since it is placed either between fire and air, or between air and water, or between water and fire. Aristotle refers to the ‘middle element’ in nine places. In *Phys.* 203a18 he says it is “between air and water”; in *Phys.* 187a14 it is “between fire and air”; in *Phys.* 205a27, *De caelo* 303b12 and *Met.* 989a14 he calls it “denser than air but rarer than water”; in *De gener. et corr.* 328b35 and *Met.* 988a30 “denser than fire but rarer than air”; in *Phys.* 189b3 “between water and fire”; and finally in *De gener. et corr.* 332a21 it is “between air and water or between air and fire” and “denser than air and fire but finer than the others”. Perhaps it is relevant that Aristotle in this context once speaks of the *three* familiar elements, and not of the four as one might expect.⁵

Antiquity had already borne witness to some uncertainty about which thinker Aristotle intended to refer to in mentioning the in-between element. The following passage suggests that at least one thinker could be considered as a candidate to be interpreted in this way:

The physicists, on the other hand, all make some other nature – one of their so-called elements, water or air or the intermediate between these – a subject of which ‘unlimited’ is predicate.⁶

⁴Aristotle, *Phys.* 187a12–23 = DK 12A16 and DK 12A9 = Gr Axr13 = TP2 Ar1.

⁵Cf. Aristotle, *Phys.* 187a14 = DK 12A16 and 12A9 = Gr Axr13 = TP2 Ar1.

⁶Aristotle, *Phys.* 203a16–17, not in DK, Gr, and TP. Translation Wicksteed and Cornford.

According to the above quoted passage in *Phys.* 187a12–23, however, the in-between element cannot be Anaximander's principle. This had already led Simplicius and Philoponus to consider it more appropriate to reshuffle the text.⁷ Wicksteed and Cornford, too, think that a rearrangement of the text is necessary, so that Anaximander comes to be associated with the first group.⁸ Kahn points to the fact that the in-between element is always referred to (varying with the context) as between water, air and fire, which are the principles of the Ionian monists Thales, Anaximenes and Heraclitus. Here, too, Anaximander is absent, just like in the first book of the *Metaphysics*, where the in-between element is also mentioned.⁹ Kahn maintains that “the possibility of this total omission, corresponding to the mention of a comparable but unattested theory, seems too remote to be seriously entertained”.¹⁰ This sounds as if Aristotle intentionally created a kind of cryptogram, asking his readers to find the missing name and offering the in-between element as a cue.

Against these reconstructions, KRS state: “on the only possible interpretation, Aristotle placed the intermediate substance and Anaximander in opposed groups”.¹¹ Similarly, Conche concludes: “La doctrine de l'élément intermédiaire comme principe des êtres n'est point celle d'Anaximandre. Elle ne lui est attribuée, mais lui est, au contraire, refusée par Aristote”.¹²

It should be noted that in Aristotle's own theory the in-between element plays no role whatsoever. Aristotle also never mentions Anaximander by name when he talks about the in-between element. It may have been a concept proposed by the students of the Lyceum, which Aristotle then discussed and opposed,¹³ but most likely it is just an example of the manner in which the Peripatetics tried to mould their predecessors according to their own theories. Perhaps the best way to cope with this matter is worded in KRS: “(...) a careful study of all Aristotle's references indicates that Anaximander was, after all, in his mind—although Anaximander in fact held no such theory. Aristotle evidently felt that Anaximander's (for Aristotle) ‘infinite’ ἀπὸχὴ must have had *some* expressible relationship to the so-called elements (...)”.¹⁴ In favor of this, it could be adduced that in *De caelo* the reference to an in-between element is followed by words that remind Alexander of Aphrodisias of Anaximander¹⁵:

⁷Simplicius, *In Arist. Phys.* 9.149.11–27 = TP2 Ar168; Philoponus, *In Arist. Phys.* 16.90.15–20 = TP2 Ar206, 16.93.13–19 = TP2 Ar207, and 16.93.20–27 = TP2 Ar208, all not in DK and Gr.

⁸Wicksteed and Cornford I, (1957, 41), note c.

⁹Cf. Aristotle, *Met.* 988a30 and *Met.* 989a14.

¹⁰Cf. Kahn (1994, 44–45).

¹¹KRS (2007, 112).

¹²Conche (1991, 94).

¹³Cf. Seligman (1962, 37).

¹⁴KRS (2007, 112).

¹⁵See DK 12A16 and Diels' remark: “falsch aus Arist. De caelo Γ 5.303b12”.

Some philosophers posit one element alone, either water or air or fire, or something rarer than water but denser than air, and this they say embraces all worlds, being boundless.¹⁶

Elsewhere, such a ‘something in between’ seems to be linked to the argument that the boundless cannot be one of the elements, because they, or at least those taken by the physicists, destroy each other, being boundless:

(...) and the unlimited element would have destroyed its opposites, as we said above. And this is the reason why no one of the physicists has taken fire or earth as unlimited unity, but water or air or something in between has always been selected; fire and earth have each a distinct region about which there could be no mistake, whereas water and air appear to be susceptible to movement either up or down.¹⁷

Sometimes Aristotle does not speak of an in-between element, but uses the more vague expression ‘besides them’. The following passage features words that are, again, reminders of Anaximander:

There is no one of these [elements] from which everything comes. Nor indeed is there something else beside them (ἄλλο τι παρὰ ταῦτα), for instance between (μέσον τι) air and water or air and fire which is denser than air and fire but finer than the others. (...) So it is never possible for the alleged source to exist by itself, as some claim about the boundless and the surrounding.¹⁸

The same expression plays a role in the next passage that contains an argument for understanding the boundless’ as principle (which Aristotle fights against); one that had been related, both in ancient and modern times, to Anaximander¹⁹:

But [if the infinite body cannot be compound] neither is it not possible that the infinite body be one and uniform, neither, as some say, as something beyond the elements (τὸ παρὰ τὰ στοιχεῖα), out of which these come into being, nor in any way at all. For there are some who posit the infinite body, and not [for instance] air or water, in order that the others may not be destroyed by one among them, being infinite. For each of these has a character contrary to the others, for instance air is cold, water moist, fire hot. So if any one of these

¹⁶Aristotle, *De caelo* 303b10 = DK 63 = TP2 Ar7, not in Gr. Translation Wicksteed and Cornford, somewhat adapted.

¹⁷Aristotle, *Phys.* 205a24–27, not in DK, Gr, and TP2. Translation Wicksteed and Cornford, somewhat adapted. The last line of this passage is somewhat strange, since Aristotle in 204b28ff = DK 12A16 = Gr Axx17 = TP2 Ar3, quoted below, also mentions fire as one of the elements that would the others destroy if it were boundless. Here, however, fire is excluded, just like earth, which is not even mentioned in 204b28ff. Sachs (1995, 86) places the whole passage from “This is the reason” to “up or down”, which Wicksteed and Cornford put between square brackets, elsewhere, namely just before 205a20, after a passage in which Aristotle discusses the places of the parts in relation to the whole.

¹⁸Aristotle, *De gener. et corr.* 332a18–25 = Gr Axx11 (translation slightly adapted) = TP2 Ar12. The passage containing the first sentences is not quite clear. What is probably meant is that something between water and air is denser than air but finer than water, and that something between air and fire is finer than air but denser than fire. Cf. Wicksteed and Cornford’s translation.

¹⁹For ancient times, see, e.g. Simplicius, *In Arist. Phys.* 9.479.30–480.8 = TP2 Ar176 and 9.484.5–14 = TP2 Ar177, not in DK and Gr.; for modern times see, e.g., Wöhrle (2012, 17 n. 1): “Wir dürfen wohl ohne besondere Bedenken an Anaximandros denken und die gesamte folgende Partie (...) als eine Polemik gegen diesen Denker verstehen.”

was infinite, the rest would already have been destroyed. But it is really something else (ἕτερον), they say, from which these things arise. (...) But no such sensible body exists in addition to the so-called elements (παρά τὰ καλούμενα στοιχεῖα).²⁰

There seems to be an interesting difference in nuance between the meanings of παρά in the two passages from Aristotle. In the passage from *De gener. et corr.*, the expression ἄλλο τι παρά ταῦτα clearly refers to the elements that are mentioned immediately thereafter, so the translation ‘beside them’ is obvious. In *Phys.* 204b22–33, on the contrary, παρά τὰ στοιχεῖα cannot refer to an in-between element, because the same argument for why it cannot be boundless would hold: if it were boundless, the other elements would cease to exist. Elsewhere in *De gener. et corr.* Aristotle uses χωριστός as a synonym for παρά, a word he also uses to indicate Plato’s Ideas²¹:

Some people assert the matter underlying these bodies is one; for example, they hold it to be air or fire or an intermediate between these two, but still a separate body (σῶμα...χωριστόν). (...) But those who postulate that there is a single matter, besides (παρά) the bodies which we have mentioned and that this is corporeal and separable (χωριστήν), are mistaken.²²

In this passage, the one body that some natural philosophers claim as ἀρχή, be it air, fire, or whatever, is said to be separate, because everything else is thought to be generated from it. This is why we translate παρά in 204b22–33 as ‘beyond’ and ‘in addition to’. According to the opinion of those described there by Aristotle, that which is boundless must be beyond, and thus not in between or beside the elements, because these are said to be generated from it. KRS fail to see this different meaning when writing with explicit reference to *Phys.* 204b22–33: “there are some passages in which he wrote simply of τὸ παρά τὰ στοιχεῖα, ‘that which is beside the elements’, not identifiable with any one of them, and not of τὸ μεταξύ or τὸ μέσον”.²³

Returning to the passage from *Physics* 187a12–23, at the very end we find a reference to ‘mixture’. However, it is not quite clear whether this reference applies to Anaximander as well. One might argue that within the second group Aristotle distinguishes between Anaximander, for whom the opposites are present in the One, and Empedocles and Anaxagoras, for whom the opposites form a mixture.²⁴ However, in the second chapter of the seventh book of the *Metaphysics*, Anaximander is again explicitly named and once again in connection with a

²⁰Aristotle, *Phys.* 204b22–33 = DK 12A16 = Gr Axr17 = TP2 Ar3. Translation adapted and completed, partly after Wicksteed and Cornford. The last line does not feature in DK and Gr. The argument is repeated in Arist. *Phys.* 205a24, not in DK, Gr, and TP. The historical ramifications of this argument are discussed in Couprie (1998).

²¹Cf. Aristotle, *Met.* 1025b28, 1086b9, and *Eth. Nic.* 1096b33.

²²Aristotle, *De gener. et corr.* 328b32–329a13 = TP2 Ar11, not in DK and Gr, translation Forster, slightly adapted.

²³KRS (2007, 112).

²⁴Cf. Seligman (1962, 41).

mixture. The passage from *Physics* is here generalized and Aristotle tries to demonstrate that the abovementioned thinkers anticipated his concept of matter:

Hence not only may there be generation accidentally from that which is not, but also everything is generated from that which is, but is potentially and is not actually. And this is the ‘one’ of Anaxagoras; for his ‘all things were together,’ and the ‘mixture’ (τὸ μῖγμα) of Empedocles and Anaximander and the doctrine of Democritus would be better expressed as ‘all things were together potentially, but not actually’.²⁵

Yet, doubts have arisen whether in this piece of text ‘mixture’ should be applied to Anaximander. Jackson proposes placing τὸ μῖγμα between commas, so that the text reads καὶ Ἐμπεδοκλέους, τὸ μῖγμα, καὶ Ἀναξίμανδρου, which makes τὸ μῖγμα relate to Empedocles only.²⁶ However this may be, it is important to note that in neither passage does Aristotle mention τὸ ἄπειρον.

The only passage where Aristotle speaks of Anaximander in connection with τὸ ἄπειρον is found in the fourth chapter of the third book of the *Physics*, which deals with motion but also with the boundless (the infinite, the unlimited). At the beginning of the chapter, Aristotle emphasizes that “all philosophers of repute who have dealt with Physics have discussed the boundless, and all have regarded it as in some sense a ‘principle’ of actually existing things”.²⁷ And while the Pythagoreans and Plato believed it to be the very substance, those who spoke about nature, that is, ‘the physicists’, treated it as a property, an attribute. Aristotle then repeats—immediately before the passage that interests us—that an investigation of the boundless should be ascribed to the physicists, adding that all who thought the boundless to be the ἀρχή were quite right²⁸:

Everything is either a source (ἀρχή) or derives from a source, but there is no source of the boundless, for then there would be a boundary of it. Furthermore, it would be without coming to be and perishing insofar as it is a source; for what comes to be must reach an end, and there is an end of every perishing. For that reason, as we said already, there is no source of the boundless (τοῦ δὲ ἀπείρου), but this is apparently the source of everything else and to contain all things and steer all things, as everyone claims who does not posit some cause next to (παρὰ) the boundless, as for instance mind or love. And this is the divine, for it is deathless and imperishable, as Anaximander says, together with the majority of the natural philosophers.²⁹

²⁵Aristotle, *Met.* 1069b18–24 = DK 59A61 = TP2 Ar5, not in Gr. The first words do not feature in DK. Translation Tredennick.

²⁶Jackson (1903, 139–144). See also Conche (1991, 95) n. 9.

²⁷Aristotle, *Phys.* 203a1–4. Translation Wicksteed and Cornford (1957), slightly adapted.

²⁸Aristotle, *Phys.* 203b4.

²⁹Aristotle, *Phys.* 203b6–15 = DK 12A15 = Gr Axr16 = TP2 Ar2. Translation slightly adapted. Graham translates καθάπερ λέγομεν as “as we say”, whereas these words obviously refer back to τοῦ δὲ ἀπείρου οὐκ ἔστιν ἀρχή a few lines earlier. Wöhrle translates it as “wie schon eben gesagt”. Graham translates ἀλλ’ αὕτη τῶν ἁλλῶν εἶναι δοκεῖ as “this seems to be a source of everything”, whereas we think it has to be “the source” because it is obviously the only source. Graham translates εἶναι δοκεῖ as ‘seems to be’ whereas we think ‘is apparently’ provides a better meaning. Wöhrle writes: “vielmehr möchte man meinen, daß umgekehrt dieses das Prinzip alles konkreten darstelle”.

The argument in the above-quoted passage has been occasionally believed to be genuinely Anaximandrian.³⁰ It certainly does not reflect Aristotle's own view.³¹ But the structure of the argumentation could also be considered as Aristotle's interpretation of Eleatic, not Milesian, reasoning.³² Melissus, specifically, treats the issue of 'boundless' in a similar way. He uses the same starting assumption, namely that what is created has both ἀρχή and τέλος (in Melissus, τελευτή):

Now since it did not come to be, but is, it always was and always will be, and it has no beginning nor end, but is unlimited (ἄπειρον). For if it came to be, it would have a beginning (for it would have begun to come to be at some time). But since it did not begin nor end, it always was and always will be, <and> it has no beginning nor end. For what is not entire (πᾶν) cannot be always.³³

Whereas in Aristotle's text the eternity of the boundless is deduced from its boundlessness, Melissus deduces its boundlessness from the fact that it has no beginning or end in time, because only that which has no beginning or end can both permanently exist and be boundless in size. Kahn, who claims that this argument should be ascribed to Anaximander, points both to Aristotle's own criticism of Melissus' argument³⁴ and to the fact that Melissus certainly did not believe the boundless to be ἀρχή τῶν ἄλλων, which is the main intention behind Aristotle's text.³⁵

Of some interest in this context is also a parallel from the *Phaedrus*, where Plato argues for the immortality of the soul based on its permanent movement:

But the beginning is ungenerated. For everything that is generated must be generated from a beginning, but the beginning is not generated from anything; for if the beginning were generated from anything, it would not be generated from a beginning. And since it is ungenerated, it must be also indestructible; for if the beginning were destroyed, it could never be generated from anything nor anything else from it, since all things must be generated from a beginning. Thus that which moves itself must be the beginning of motion.³⁶

Yet, we do not believe that the argument presented by Melissus and repeated in one way or another by Plato and Aristotle, goes further back than the mid-5th century BC.³⁷ It does not reflect a style typical of Ionian thought, which is not so

³⁰See especially Kahn (1958).

³¹In *Phys.* 204a8–9, Aristotle explicitly states: "it is impossible that there should exist an 'unlimited' se junct from objects of sense, and constituting a self-existing 'infinite'" (translation Wicksteed and Cornford). Cf. Kahn (1958, 20–22).

³²Cf. Barnes (1982, 35), Burnet (1930, 57) and Gottschalk (1965, 40).

³³Simplicius, *In Arist. Phys.* 9.29.22; 9.109.20 = DK30 B2 = Gr M1s10. The translation of the last line is from KRS (2007, 393), in contrast to Graham: "For it is not possible for something to be always which does not altogether (πᾶν) exist."

³⁴Aristotle, *Phys.* 186a10–16 = DK 30A10, not in Gr.

³⁵Cf. Kahn (1958, 22–24).

³⁶Plato, *Phdr.* 245d. Translation Fowler.

³⁷According to Diogenes Laertius (DL IX.24 = DK 30A1 = Gr M1s1), Apollodorus situated Melissus' acme to the time of the 84th Olympiad (i.e. 444–441 BC).

much occupied with abstract arguing, but rather one which makes use of analogies and images. It does not seem likely, therefore, that Anaximander actually used such an abstract and sophisticated style of argumentation. Moreover, it can be argued that the reference to Anaximander here only concerns the qualifications ‘divine’, ‘deathless’ and ‘imperishable’. Kahn’s remark that “in fact only for Anaximander alone could it be correct to say that ‘the ἄπειρον is the ἀρχή, which surrounds all things’”³⁸ does not necessarily imply, as he seems to think, that Anaximander used the foregoing argument that allegedly would prove that assertion.³⁹

In reference to Anaximander’s principle, less disputed are the qualifications that “there is no source for the boundless” and that it ‘contains all things and steers all things’ (περιέχειν καὶ κυβερνᾶν) as well as ‘the divine’ (τὸ θεῖον) and ‘deathless and imperishable’ (ἀθάνατον γὰρ καὶ ἀνώλεθρον). The Diels-Kranz edition even assumes that these are Anaximander’s own words.⁴⁰

It needs to be stressed that the quoted passage from *Physics* 203b6–15 is the only place in Aristotle’s writing where Anaximander is mentioned in connection with τὸ ἄπειρον. But are we, based on this one passage, justified in claiming that Aristotle ascribes to Anaximander a principle in the form of τὸ ἄπειρον? We do not believe so, despite the fact that Anaximander is expressly named. One needs to take into account that the whole chapter deals with ‘the boundless’ and, after all, Aristotle repeatedly claims that all natural philosophers investigated the boundless and thought it to be a principle.⁴¹ Moreover, at the beginning of this text, Aristotle refers to ‘natural philosophers’ in the plural and Anaximander is mentioned only towards the end, where τὸ ἄπειρον is given divine attributes. Even here, the Milesian is not explicitly mentioned in connection with τὸ ἄπειρον being a principle. Rather, the reference to him is primarily in the context of the divinity of the boundless. Aristotle emphasizes this point, saying that τὸ ἄπειρον is ‘deathless and imperishable’. The words ‘as says’ most likely refer to the phrase ‘deathless and imperishable’, which Hermann Diels marks as Anaximander’s fragment 12B3. It seems that what Aristotle wanted to show was that most of his predecessors believed the origin to be divine. Emphasis on divinity—and not on the boundless as the origin—thus seems to be the thing that Aristotle primarily connects with Anaximander. But even there, the claim is ascribed not to him expressly but to natural philosophers in general. Anaximander is mentioned together with other thinkers and though he is the oldest of the group, the subject is not linked exclusively to him. Taken together, these considerations may indicate that the whole passage should be seen as Aristotle’s concoction of various pre-Socratic teachings, of which only the last clause can be ascribed more especially to Anaximander.

³⁸Kahn (1958, 19).

³⁹An extensive discussion of both arguments is found in Couprie (1989, 42–66).

⁴⁰DK 12B3. Cf. Kahn (1958, 22).

⁴¹Cf. Fehling (1994, 79): “Wer, wie üblich, gelernt hat, daß nur einer, nämlich Anaximander, ‘das Apeiron’ als Anfang gesetzt habe, wird sich wundern.”

Actually, Aristotle's generalization says no more than that the natural philosophers understood their ἀρχαί as 'boundless'.⁴²

Immediately after the quoted crucial passage from *Physics* 203b6–15, Aristotle lists five reasons for supposing the existence of the boundless. These reasons reflect older, archaic conceptions of different schools of philosophers, albeit in Aristotelian terms. The third, repeated by Theophrastus and several doxographers, answers the question: Why did the early philosophers choose 'boundless' as a predicate of their principle? The answer is supposed to be applicable to Anaximander as well, in that the need for an everlasting source that never gives in, in order to guarantee an on-going process. Aristotle writes:

The belief in something boundless (τὸ ἄπειρον) would seem to arise especially from five considerations: (...) [3] from the fact that only in this way will coming to be and perishing not cease: so long as that from which what comes to be proceeds is boundless.⁴³

In Aristotle's material reading, τὸ ἄπειρον is supposed to be the inexhaustible source of all creation, which, thanks to it, will never cease; a fountain that never will run dry.⁴⁴ This notion is one he criticizes:

Admitting that things never cease to come into being, it does not follow that there actually exists some sense-perceptible body unlimited in quantity (ἄπειρον εἶναι σῶμα αἰσθητόν); for though the sum of things be limited, things may come out of and pass into each other.⁴⁵

That Aristotle calls the argument unconvincing at least indicates that someone else had used it. Other texts, obviously echoing Aristotle and probably going back to Theophrastus, identify this 'someone' as Anaximander:

Anaximander, son of Praxiades, of Miletus says the boundless is the source of existing things. (...) Thus he tells why it is boundless: in order that the coming to be which occurs may never cease.⁴⁶

Simplicius supports this explanation:

Anaximander, a fellow-citizen and associate of Thales (...) was the first to postulate the boundless in order to provide abundantly for things coming to be.⁴⁷

Most modern scholars also agree that Aristotle must have had Anaximander in mind and that ἄπειρον σῶμα αἰσθητόν refers to a boundless source that guarantees

⁴²Cf. Barnes (1982, 35–36).

⁴³Aristotle, *Phys.* 203b16–20 = DK 12A15 = Gr Axr16 = TP2 Ar2. Translation slightly adapted.

⁴⁴Cf. Barnes (1982, 30), Kahn (1994, 38) and Kraus (1950, 366–367).

⁴⁵Aristotle, *Phys.* 208a8 = DK 12A14 (partially) = TP2 Ar4, not in Gr. Translation Wicksteed and Cornford. They add "without end", which may cover what Aristotle means even though it does not appear in his text.

⁴⁶Aetius, *Plac.* I.3.3 = DK 12A14 = Gr Axr18 = TP2 Ar53. This is Pseudo-Plutarch's version; for that of Stobaeus, see TP2 Ar148.

⁴⁷Simplicius, *In Arist. De caelo* 7.615.13 = DK 12A17 = TP2 Ar192, not in Gr (our translation). Cf. *In Arist. Phys.* 9.464.19–465.17 = TP2 Ar175, not in DK and Gr.

the permanence of the process of creation. Kahn, who argues that the argument presented in *Phys.* 203b6–15 must go back to Anaximander himself, even ventures to state that Anaximander “called the unknown world source τὸ ἄπειρον, ‘that which is inexhaustible’”, thus making ‘inexhaustible’ almost a translation of ἄπειρος.⁴⁸

Dührsen, on the other hand, following the analyses of Lebedev and Fehling, has recently come to the conclusion that τὸ ἄπειρον is one of the substantivized technical terms introduced by Aristotle.⁴⁹ In his own theory, Aristotle admits only a potential infinity and explicitly rejects the boundless as a principle:

It is further manifest that the boundless cannot exist as an actualized entity and as substance or principle.⁵⁰

In other words, in Aristotle’s view, if there were an actual boundless all parts of it would also have to be boundless, just as every part of air is air. The boundless is thus indivisible, without parts,⁵¹ and therefore just an attribute:

The boundless, then, must exist, if at all, attributively (κατὰ συμβεβηκός). But in that case it has been shown that it cannot be the boundless’ itself that is a principle (ἀρχή), but the boundless thing of which ‘boundless’ is an attribute (ὃ συμβέβηκεν), as some have predicated of ‘air’ or of ‘the even number’.⁵²

To Aristotle, τὸ ἄπειρον represents a separate problem he deals with in Chaps. 4–8 of the third book of the *Physics*. He sees it as a part of natural science because natural science deals with sizes, movement and time, which can all be either limited or boundless.⁵³ According to Aristotle, this claim is supported by the fact that all thinkers who engage in natural science also provide various conceptions of the boundless:

All philosophers of repute who have dealt with Physics have discussed the ‘boundless’ and all have regarded it as in some sense a ‘principle’ of actually existing things. Some, such as the Pythagoreans and Plato, have regarded the boundless or undetermined as existing in itself, and not as being a condition incident to something else, but having its own independent substantive existence. (...) The physicists, on the other hand, all make some other nature – one of their so-called elements, water or air or the intermediate between these – a subject of which ‘boundless’ is a predicate (οἱ δὲ περὶ φύσεως ἅπαντες ἀεὶ ὑποτιθέασιν ἑτέραν τινὰ φύσιν τῷ ἀπείρῳ τῶν λεγομένων στοιχείων).⁵⁴

⁴⁸Kahn (1994, 38 and 237).

⁴⁹Dührsen (2013, 272–273), cf. Lebedev (1978) and Fehling (1994, 76–86).

⁵⁰Aristotle, *Phys.* 204a20. Translation Wicksteed and Cornford, slightly adapted.

⁵¹Aristotle, *Phys.* 204a25–30.

⁵²Aristotle, *Phys.* 204a30–32. Translation Wicksteed and Cornford, slightly adapted: they translate ἀρχή as ‘element’. See also 207b34–37 = TP2 Ar4, not in DK and Gr.

⁵³Aristotle, *Phys.* 202b30–36.

⁵⁴Aristotle, *Phys.* 203a1–18 = DK 58B28 (only the first half); not in Gr and TP2. Translation Wicksteed and Cornford.

Here, Aristotle makes an important distinction between the Pythagoreans and Plato on the one hand and natural philosophers on the other. While the first group viewed the boundless as a substance, the other treated it as just a property, an attribute of one of the elements, including the in-between element. Though the passage is formulated in general terms, we can infer that according to Aristotle no thinker prior to Plato—with the exception of mainly the Pythagoreans, who are in this sense mentioned also in the *Metaphysics*⁵⁵—viewed the boundless as a substance. Rather, it was seen as an attribute of something else, de facto as a property of this or that element. Obviously, Aristotle had the Ionian philosophers in mind in the first place, of which, for example, Anaximenes called his principle—the air—boundless. Since Anaximander indeed did not belong to the first group, it implies that he belonged to the latter. Somewhat later on, Anaximander is explicitly named together with ‘the majority of the natural philosophers (φυσιολόγοι)’.⁵⁶ According to De Vogel, this “means that Anaximander, being one of the *περί φύσεως*, the *ἄπειρον* is not a subject, but a predicate”.⁵⁷ More than twenty years later, the same conclusion is drawn by Lebedev from a study of the same text: “In the language of grammar this means that only the Pythagoreans and Plato substantivized the adjective *ἄπειρος*, while ‘all natural philosophers’ used the term precisely as an adjective, modifying ‘another substantive’”.⁵⁸ In the same sense, Fehling observes: “Alle Autoren *περί φύσεως* haben also ‘unendlich’ nur als Attribut gebraucht (...) also liegt in dem Satz, daß er genau so wenig wie die andern ‘das Apeiron’ gesagt hat”.⁵⁹ It is a pity that neither Diels/Kranz, Graham nor Wöhrle include these crucial lines (*Phys.* 203a16–17) in their volumes.

Aristotle clearly tries to show here that the so-called natural philosophers (φυσιολόγοι, οἱ δὲ *περί φύσεως*) must be seen as his forerunners since they, too, conceived of the *ἄπειρον* as an attribute. It is important to note that Aristotle still speaks of τὸ *ἄπειρον*, even when he, in referring to the natural philosophers, stresses that they used the word attributively, in which case it would be logical to expect the adjective *ἄπειρος*. We may compare it with present-day English expressions like ‘the Almighty’, meaning ‘the almighty God’, or more profane ones like ‘the good, the bad and the ugly’, meaning ‘the good man, the bad man and the ugly man’. These words are not meant as abstracta, but rather indicate specific objects or persons by means of their characteristic attributes. To quote Fehling again: “τὸ *ἄπειρον* aber ist auch hier natürlich nicht ‘das Unendliche’ an sich, sondern nur das, wovon jeweils ‘unendlich’ ausgesagt ist.”⁶⁰ Perhaps one might

⁵⁵Aristotle, *Met.* 987a13 = DK 58B8 = Gr Phs48.

⁵⁶Aristotle, *Phys.* 203b14 = DK 12A15 = Gr Axr16 = TP2 Ar2.

⁵⁷Cf. De Vogel (1957, I, 7). See also Wicksteed and Cornford 220, note b: “the physicists have an unlimited *something*”.

⁵⁸Lebedev (1978, I, 53), the quotation is from the English Summary.

⁵⁹Fehling (1994, 80).

⁶⁰Fehling (1994, 84).

argue that this reflects the vernacular of the ancient philosophers, or even Anaximander in particular.⁶¹ In fragment DK 12B1, we find a phrase κατὰ τὸ χρεών, where similarly the word χρεών is not, prior to Anaximander, attested anywhere with an article. Kahn remarks that this is not surprising for an author who also used not only τὸ ἄπειρον but also τὸ θερμόν, τὸ ψυχρόν, τὸ ὑγρόν, etc.⁶² We might add τὸ θεῖον,⁶³ τὸ γόνιμον⁶⁴ and possibly τὸ περιέχον and τὰ ὄντα. However, if there is reasonable doubt whether Anaximander used τὸ ἄπειρον as a noun, and taking into account that these other words are part of the rendition of Anaximander's cosmogony by Simplicius and others, the substantivized expression κατὰ τὸ χρεών stands by itself. Consequently, Havelock argues that it, too, does not represent the original language of Anaximander.⁶⁵

However this may be, we may conclude that when Aristotle, talking about the 'natural philosophers' (including Anaximander), speaks of τὸ ἄπειρον, he actually refers to this attributive use of the noun. Therefore, the best way to render the meaning of τὸ ἄπειρον in Anaximander and the other natural philosophers is 'that which is (called) boundless'. This is exactly what Aristotle points to in another of the passages we quoted earlier, just after having mentioned Anaximander:

(...) as says Anaximander and most of the natural philosophers. The belief in the existence of *something boundless* (τοῦ δ' εἶναι τι ἄπειρον ἢ πῖστις) (...).⁶⁶

Graham translates less precisely "the belief in some infinite principle", whereas Wicksteed and Cornford specify more literally "the belief in the existence of something infinite".⁶⁷ Also when Aristotle repeats:

Clearly then the study (of the boundless) is germane to the natural philosophers. All those who accept it are quite right in regarding it as a principle.⁶⁸

⁶¹Dührsen (2013, 272) points to Homer, *Od.* XIV, 12: τὸ μέλαν δρυός, "the black of the oak", meaning its bark.

⁶²Cf. Kahn (1994, 169–170).

⁶³The substantivized τὸ θεῖον also appears in an aphorism ascribed to Thales, but sounding as if it were Anaximander's: "what is the divine? That which has no origin and no end" (DL I.36= DK 11A1[36] = TP1 Th237[36], not in Gr).

⁶⁴The term τὸ γόνιμον not only occurs in the doxography on Anaximander, but is also used by Simplicius (*In Arist. Phys.* 9.36.8–14 = TP1 Th411 = TP2 Ar165, not in DK and Gr) in connection with Thales.

⁶⁵Cf. Havelock (1983, 64).

⁶⁶Aristotle, *Phys.* 203b16 = DK 12A15 = Gr Axx16 = TP2 Ar2, our italics. Translation slightly adapted; our italics.

⁶⁷On the other hand, a few lines further on (*Phys.* 203b19–20), Graham translates "(...) there is something infinite from which what comes to be is subtracted", as if the text there reads τι ἄπειρον instead of ἄπειρον.

⁶⁸Aristotle, *Phys.* 203b4–5 = TP2 Ar2, not in Gr. Translation Wicksteed and Cornford, slightly adapted.

we must remember that he has already stipulated that the natural philosophers all considered the boundless an attribute, so that we have to understand ‘the boundless’, as stated before, as ‘that which is (called) boundless’, ‘something boundless’: *τι ἄπειρον*.

We may conclude from the analysis of the relevant texts that Aristotle’s work does not provide us with convincing evidence that would link Anaximander with a principle called ‘the boundless’. We have seen that Aristotle refers to Anaximander’s principle using terms such as ‘one’ or ‘mixture’ and that he points to a connection between Anaximander’s philosophy and the theories of Anaxagoras and Empedocles. If we did not have another tradition based on Theophrastus at our disposal and had to do with just Aristotle’s work, it is unlikely that ‘the boundless’ would be so frequently named as Anaximander’s principle. We have also seen that, on the other hand, Aristotle’s texts do not exclude the idea that Anaximander used the expression ‘the boundless’ attributively, indicating something that is (called) boundless and which can be considered in some way or another as the everlasting ‘source’ of everything. Obviously, when ‘boundless’ must be understood as an attribute of something else, the question arises which noun it might be an attribute of.⁶⁹ Before paying attention to this fundamental question, we will first turn to Aristotle’s successor Theophrastus and to the tradition that originates from his work, in order to determine whatever information can be drawn from that source.

⁶⁹Cf. Fehling (1994, 81): “Aber ehe man einem Ding ein Attribut gibt, muß es einen Namen haben.”

Chapter 4

Apeiron According to Theophrastus and the Doxography

Generally speaking, the sources of the so-called doxographers were Aristotle and Theophrastus. As we have seen in the previous chapter, the little we know from Aristotle about Anaximander is embedded in his own philosophical theories, which were not particularly suitable for articulating Anaximander's thoughts. Theophrastus and the doxographers, too, tried to grasp Anaximander's 'principle' within the framework of Aristotle's theory of the elements, as illustrated through the context of the only substantial fragment of Anaximander's book. Theophrastus' report on Anaximander's ἀρχή is handed down to us by the neo-Platonist Simplicius in his commentary on Aristotle's *Physics*:

Of those who say that it [sc. the element (τὸ στοιχεῖον)]¹ is one (ἓν) and in motion and boundless (ἄπειρον), Anaximander, the son of Praxiades, of Miletus, the successor and student of Thales, said the source and element of existing things was the boundless (τὸ ἄπειρον), being the first one to apply this term to the source (πρῶτος τοῦτο τοῦνομα κομίσας τῆς ἀρχῆς). And he says it is neither water nor any other of the so-called elements, but some other boundless nature (ἐτέραν τινὰ φύσιν ἄπειρον), from which come to be all the heavens and the worlds in them: Whence things have their origin, thence also their destruction happens, **as is the order of things; for they execute the sentence upon one another – the condemnation for the crime – in conformity with the ordinance of time**, as he expresses in rather poetic terms. It is clear that, observing the change of the four elements into each other, he did not think it appropriate to make one of them the substratum of the others, but something else beyond them (τι ἄλλο παρὰ ταῦτα). And he did not derive generation from the alteration of some element, but from the separation of contraries due to

¹Graham translates: "of those who say the source is one, etc."; Wöhrle has: "Von denen die sagen, dass [das Prinzip] eines etc." However, in the first quoted sentence, the noun to which 'one', 'in motion' and 'boundless' refer is not mentioned, but these words most naturally refer to 'the element' (τὸ στοιχεῖον), which is the last word of the previous sentence. The two sentences are clearly contrasted by the words μέν and δέ. KRS leave the question undecided: "of those who say that it is one, etc." Fehling (1994, 97) adds "(scil. τὸ στοιχεῖον)" in the Greek text, while Hackemann (2007, 26) translates: "von denen, die behaupten, das Element sei nur eines, etc." In email correspondence, Wöhrle has acknowledged that our translation is right.

everlasting motion (διὰ τῆς αἰδίου κινήσεως). That is why Aristotle classified him with the followers of Anaxagoras.²

We have printed in bold the passage which most scholars agree reflect Anaximander's own words. The most conspicuous feature of it is the contrast between the poetic language of Anaximander and, as Simplicius himself duly remarks, the peripatetic jargon surrounding it. Simplicius' text clearly tries to explain Anaximander (and the other Ionian philosophers) against the background of the theory of the four elements. But evidently Anaximander's 'principle' does not fit into this straitjacket, for it is stressed that it is not one of those elements but something else that is designated as 'something else beyond them', and more specifically 'the boundless' or 'some other boundless nature'. Interestingly, in the context of our investigation, Simplicius uses 'boundless' twice as an adjective, once as a noun and twice he makes use of a circumscription.

In the works of other doxographers we find more or less close parallels of Theophrastus' report on Anaximander's 'source and element'. A preserved passage from Hippolytus, a third century Roman theologian, is very similar to the above-quoted passage from Simplicius:

Anaximander (...) said the source of existing things was a certain nature of the boundless (φύσιν τινὰ τοῦ ἀπείρου), from which come to be the heavens and the cosmos in them. And this is everlasting and ageless, and it also surrounds all the worlds. He speaks of time as though there were a determinate period of coming to be and existing and perishing. (2) He has said the source and element of existing things is the boundless (τὸ ἄπειρον), being the first to call the source by <this> term (πρῶτος τοῦτο τοῦνομα καλέσας τῆς ἀρχῆς).³ Furthermore, motion is everlasting, as a result of which the heavens come to be.⁴

In comparison with Simplicius, Hippolytus either omits some words or replaces them with others. Especially remarkable is his transformation of Simplicius' 'some other boundless nature', ἐτέραν τινὰ φύσιν ἄπειρον, into 'a certain nature of the boundless', φύσιν τινὰ τοῦ ἀπείρου. We agree with Kahn⁵ that "the complete agreement of Simplicius and Hippolytus provides us with the original wording of Theophrastus, against which the other doxographers must be judged". In a similar vein, Pseudo-Plutarch, quoted by Eusebius, reports:

After [Thales] Anaximander, who was his associate, said the boundless (τὸ ἄπειρον) contained the whole cause of coming to be and perishing of the world, from which he says the heavens are separated and generally all the worlds, which are countless (ἀπείρους ὄντας). And he declared perishing to take place and much earlier coming to be, all these recurring from an infinite time past.⁶

Aetius writes:

²Simplicius, *In Arist. Phys.* 9.24.13–25.1 = DK 12A9 = DK 12B1 = Gr Axr9 = TP2 Ar163. Translation adapted.

³For this translation, see our commentary on the parallel text by Simplicius above.

⁴Hippolytus, *Ref.* I.6.1–2 = DK 12A11 = Gr Axr10 = TP2 Ar75.

⁵Kahn (1994, 30).

⁶Pseudo-Plutarch, *Strom.* 2 = DK 12A10 = Gr Axr19 = TP2 Ar101.

Anaximander, son of Praxiades, of Miletus says the boundless (τὸ ἄπειρον) is the source of existing things. For from this all things come to be and into this all things perish. That is why countless (ἀπείρους) worlds are generated and again perish into that from which they came to be. Thus he tells why it is boundless (διὰ τί ἄπειρόν ἐστιν): in order that the coming to be which occurs may never cease. But he fails by not saying what the boundless (τὸ ἄπειρον) is, whether air, water, or earth, or some other bodies (ἄλλα τινὰ σώματα).⁷

And Diogenes Laertius relates more briefly:

Anaximander, son of Praxiades, of Miletus. He said the source and element was the boundless (τὸ ἄπειρον), not defining it as air or water or something else (ἄλλο τι). And the parts change, but the totality is changeless.⁸

These passages demonstrate that Anaximander's ἀρχή was repeatedly defined against the background of the theory of the elements, but at the same time, although they repeatedly and unequivocally state that Anaximander believed τὸ ἄπειρον to be 'the source and element' (ἀρχή καὶ στοιχεῖον), they also evidently contrast Anaximander's ἀρχή with the 'so-called elements'. In the first quoted passage, Simplicius refuses to link Anaximander to water or any other element, while Aetius adds air, earth and 'some other bodies'. A similar expression is found in Diogenes Laertius, who reports that Anaximander's principle is not water, air or 'something else'.⁹

When we focus on the main features of Anaximander's principle as related by Theophrastus, we see that they do not differ significantly from Aristotle's notes. First of all, Anaximander's principle is—as in Aristotle—said to be ἓν, the 'one'. It should also be noted that Simplicius' text is immediately preceded by this report on Thales:

Of those who say the principle of all things is one and in motion, whom [Aristotle] properly calls natural philosophers, some say it is limited in number, such as Thales son of Examyus, of Miletus...¹⁰

Similarly, Anaximander is ascribed one source, which is described as κινούμενον, literally 'in motion', and unlike Thales' source also ἄπειρον, 'boundless'. Reasons for such descriptions can be comprehensively traced to Aristotle's surviving writings. The first book of the *Physics* begins with an explanation of the general method of natural science, whose proper subjects are the ἀρχαί, i.e. the 'beginnings' or 'principles'. There then follows a general classification of principles and the importance of motion is emphasized. This definition of

⁷Aetius, *Plac.* I.3.3 = DK 12A14 = Gr Ax18 = TP2 Ar 53. The words "whether air, water, or earth, or some other bodies" appear in Pseudo-Plutarch's version, not in Stobaeus', cf. Dox 278.

⁸DL II,1 = DK 12A1 = Gr Axr1 = TP2 Ar92. We prefer 'something else' rather than Graham's 'anything else'; Wöhrlé has 'etwas anderes'.

⁹DL II,1 = DK 12A1 = Gr Axr1 = TP2 Ar92.

¹⁰Simplicius, *In Arist. Phys.* 9.23.21–33 = DK 11A13 = Gr Ths17 = TP1 Th409.

Anaximander's principle clearly demonstrates Theophrastus' dependence on Aristotle and the use of terminology of the Peripatetic school:

Well, then, there must be either one principle of Nature or more than one. And if only one, it must be either rigid, as Parmenides and Melissus say, or modifiable, as the Physicists say, some declaring air to be the first principle, and others water. If, on the other hand, there are more principles than one, they must be either limited or unlimited in number. And if limited, though more than one, they must be two or three or four, or some other definite number. And if they are unlimited, they must either be, as Democritus held, all of the same kind generically, though differing in shape and sub-characteristics, or of contrasted nature as well.¹¹

Yet, while Aristotle finds it evidently difficult to classify Anaximander's thought, describing his principle as the 'one' or 'mixture', Theophrastus places him among the monists. At the same time, however, he also notes the vagueness of Anaximander's principle and, like Aristotle, describes it as the 'one', ἓν. On the other hand, he does not explicitly mention the other descriptions—divine, deathless and imperishable—Aristotle applies; neither does he call it 'mixture', τὸ μῖγμα.

We may conclude that in interpreting Anaximander the doxographers follow Aristotle's conceptual scheme and terminology. Only occasionally words or phrases occur that seem to have been taken from Anaximander's book. We count, next to ἄπειρος, the phrase κατὰ τὸ χρεῶν· διδόναι δίκην καὶ τίσιν ἀλλήλοις τῆς ἀδικίας, a few words including ἀγήρω, πρηστῆρος αὖλος, κίονι λίθαι, γόνιμον(?), φλοιός and τροχός and perhaps περιέχειν and κυβερνᾶν.¹² These phrases and words evoke a completely other sphere of thought to the Aristotelian jargon of ἀρχή, στοιχεῖον, αἶτιον, ὑποκείμενον, ὕλη, and σῶμα αἰσθητόν. The Aristotelian way of thinking and expressing obviously does not tally with that of Anaximander. Its insufficiency is shown in the way Aristotle and the doxographers fail in their desperate attempts to press Anaximander's 'principle' into the mould of the material substances of the elements, calling it μεταξύ, μέσον τι, ἑτέρα τιὰ φύσις, τι ἄλλο παρὰ ταῦτα, ἀόριστος and ἀδιορίστως.

Generally speaking, in the doxography we see a tendency to substitute the name of Anaximander at several of Aristotle's cues. In the quoted passage above, Simplicius (following Theophrastus?)¹³ tries to imagine why Anaximander, seeing the change of the four elements into each other, did not make one of the elements his principle. This obviously refers to a passage in Aristotle's *Physics* 204b22–33, in which he polemicizes against an argument (discussed in the previous chapter) that Simplicius paraphrases elsewhere:

(...) or [a one and simple boundless body] is (...) something else apart from them (ἄλλο τι παρὰ ταῦτα) [sc. the four elements], as the school of Anaximander says, viz. that [body] beyond the elements (τὸ παρὰ τὰ στοιχεῖα), from which the elements originate. That none

¹¹Aristotle, *Phys.* 184b15–21.

¹²Cf. DK 12B1–5.

¹³According to KRS (2007, 129), it is almost certain that Simplicius here no longer quotes Theophrastus.

of the elements can be boundless is already clear from the fact that Anaximander, as he wanted the element to be boundless, did not take it as air or fire or one (other) of the four elements, because these are opposite to one another. If actually one of them were boundless, then the opposites would have been destroyed by it.¹⁴

This is also instructive for usage of the expressions τὸ παρὰ τὰ στοιχεῖα and ἄλλο τι παρὰ ταῦτα. Here, the boundless is clearly placed on another level (παρά) than the elements since they are thought to have been generated from it. This expression is, like τι ἄλλο παρὰ ταῦτα, repeated by Simplicius immediately after Anaximander's fragment where he refers to Aristotle's passage in *Phys.* 203b16–20, but he also uses it elsewhere in relation to Anaximander's in-between element.¹⁵ This twofold use of παρά is also a reflection of Aristotle, who, as we argued in the previous chapter, occasionally uses it to indicate the in-between element, so that we have to translate it as 'besides' or 'next to', but at another time uses it to indicate something completely different from the elements, so that we have to translate 'additional to' or 'beyond'. Modern commentaries have barely given any attention to this twofold use of παρά.

As regards the in-between element, which is mentioned by Aristotle several times without ascribing it explicitly to any of his predecessors, Nicolaus of Damascus and Porphyry reject the idea of linking this element with Anaximander, preferring to ascribe it to Diogenes of Apollonia¹⁶ (which is strange, because his principle was known to be air).¹⁷ Most ancient thinkers, however, including Alexander of Aphrodisias, believed it to be a reference to his thinking:

He [Aristotle] added to his study also the view of Anaximander, who posited as a source the nature between air and fire, or air and water (for the view is expressed both ways).¹⁸

It is also apparent from the works of other ancient authors that in enumerating the principles of the Presocratics they often describe Anaximander's principle as an in-between element. Simplicius repeatedly mentions Anaximander in connection with it. The following quote is one of many instances of this:

Thales water, Anaximenes (...) air, Anaximander the in-between element (τὸ μεταξύ), Heraclitus fire.¹⁹

¹⁴Simplicius, *In Arist. Phys.* 9.479.33 = TP2 Ar176, not in DK and Gr; our translation.

¹⁵See, e.g. Simplicius, *In Arist. Phys.* 9.149.11–27 = TP2 Ar168, not in DK and Gr.

¹⁶See Simplicius, *In Arist. Phys.* 9.149.11–27 = TP2 Ar168, not in DK and Gr.

¹⁷Cf. Kahn (1994, 44).

¹⁸Alexander of Aphrodisias, *In Arist. Met.* 1.60.8 = DK 12A16 = Gr Axr12 = TP2 Ar82.

¹⁹Simplicius, *In Arist. De cael.* 7.561.1–8 = TP2 Ar190, see also, e.g. *In Arist. Phys.* 9.36.8–14 = TP2 Ar165; 9.149.11–27 = TP2 Ar168; 9.452.30–453.1 = TP2 Ar172; 9.458.19–26 = TP2 Ar173; 9.458.34–459.4 = TP2 As174; 464.19–465.17 = TP2 Ar175; 9.479.30–480.8 = TP2 Ar176; 9.484.5–14 = TP2 Ar177; 10.1266.29–1267.3 = TP2 Ar180, all not in DK and Gr.

Another example is Philoponus, who in this context uses the phrase ἕτερον τι παρὰ ταῦτα.²⁰ Olympiodorus even identifies the in-between element with smoke or vapor.²¹ There exists, however, a general agreement among modern scholars that the attribution of the in-between element to Anaximander is not right.

In the previous chapter we saw that Aristotle occasionally uses the term ‘mixture’ (μῖγμα) when mentioning Anaximander in the same breath as Empedocles and Anaxagoras. Although Theophrastus does not explicitly use the same term in connection with Anaximander, he specifically stresses the parallel between Anaxagoras and Anaximander, as is clear from the end of the quoted text from Simplicius above (*In Arist. Phys.* 9.24.13–25.1). Simplicius repeats this in similar wordings elsewhere:

And Theophrastus says that Anaxagoras sounds like Anaximander in this: for he (ἐκεῖνος) says that in the segregation of the boundless, like things travel towards each other (...). Looking at it this way, Anaxagoras would seem to make the material principles boundless (ἀπείρους) but the cause of motion and coming to be a single one, namely mind. But if one supposes the mixture (μῖξις) of all things to be a single nature indefinite (μίαν φύσιν ὁρίστον) in both kind and size, it would turn out that he is committed to two principles: the nature of the boundless and mind. In doing so, he seems to conceive of the corporeal elements just like Anaximander.²²

Both Diels and McDiarmid let ἐκεῖνος refer to Anaximander, whereas Gottschalk, Kahn, Wöhrle and Graham prefer Anaxagoras.²³ We think Wöhrle’s translation ‘jener’ and Graham’s ‘the former’ are right. Theophrastus shows that Anaxagoras can be interpreted in two different ways. Firstly, his principle can be understood as a mixture of a boundless number of elements. In such a case, what one would have is a boundless number of ἀρχαί and one cause of motion, namely the νοῦς, whereby all substances would be present in the original mixture. If, on the other hand, one interprets the mixture as one sole substance, indeterminate in shape and size, one is left with two principles, namely the nature of the infinite and the mind. The similarity with Anaximander should then lie in his principle being ‘a single nature indefinite, in both kind and size’, without, however, needing to add a second principle, such as Anaxagoras’ νοῦς, as the cause of motion and coming to be.

Simplicius seems to have his doubts about this association between Anaximander and Anaxagoras, for in another place of his commentary on *Physics*, he basically repeats the entire passage:

And Theophrastus, forcing together (συνωθῶν) Anaxagoras and Anaximander, understands Anaxagoras’ words so that he can say that the substratum is a single nature (μίαν αὐτὸν

²⁰Philoponus, *In Arist. Phys.* 16.23.14–26 = TP2 Ar203; see also 16.90.15–20 = TP2 Ar206, and 16.427.9 = TP2 Ar212, and 16.432.8–24 = TP2 Ar213; all not in DK and Gr.

²¹Olympiodorus, *De arte sacra* 27 = TP2 Ar217, not in DK and Gr.

²²Simplicius, *In Arist. Phys.* 9.27.2–23 = DK 59A41 = Gr Axx32 = TP2 Ar164. Translation adapted.

²³Dox 479; McDiarmid (1953, 100), Gottschalk (1965, 43) and Kahn (1994, 41–42).

φύσιν). He writes as follows in the *Study of Nature*: “Looking at it this way, he would seem (δόξειεν) to make the material principles boundless, as has been said, but the cause of motion and coming to be a single one. But if one supposes the mixture of all things to be a single nature indefinite in both kind and size, which is what he seems to mean, it would turn out that he is committed to two principles, the nature of the boundless and mind. In doing so, he seems to conceive of the corporeal elements just like Anaximander.”²⁴

Strangely enough, Graham thinks that Anaximander is meant by δόξειεν, whereas Wöhrle believes it to refer to Anaxagoras. We think the latter is correct since Anaxagoras is mentioned in the above-quoted, almost identical passage and Anaximander at the very end of both. Diels suggests that Theophrastus may have based his words on a passage in Aristotle’s *Metaphysics*, where the same word ἀόριστος is used to indicate Anaxagoras’ ‘mixture’ by way of an explanatory addition: “before it is determined and partakes of some form”.²⁵ Simplicius’ negative judgment does not concern the interpretation of Anaxagoras’ ‘mixture’ as an ‘indefinite nature’ as such, but has to do with the interpretation of Anaximander’s principle as an Anaxagorean ‘mixture’.

Theophrastus’ text can be seen as the source of the interpretation of Anaximander’s ἀπειρον as ‘qualitatively indefinite’. He identifies Anaximander’s φύσις τοῦ ἀπειρου with what, in his interpretation of Anaxagoras, he calls φύσις ἀόριστος, therewith apparently identifying ἀπειρος with ἀόριστος. This is at odds with the verdict of Dancy and Gottschalk (discussed in Chap. 2), which contends that ‘boundless’ can never mean ‘indeterminate’. It should be noted that in both above-quoted passages it is not said, as Wöhrle’s translation suggests, that Anaxagoras and Anaximander failed to define the mixture, but that it is indeterminate in kind and size, using the words φύσις ἀόριστος. We have seen in Chap. 2 that those authors who said that Anaximander failed to define his principle did not use the word ἀόριστος, but expressions like οὐ διορίζων or οὐ διορίσαντα, ‘not defining it’ and ἀδιορίστως, ‘in a vague way’. We may conclude that although Anaximander’s principle is not a mixture in the Anaxagorean sense, the interpretation of ‘the nature of the boundless’ as ‘a single indefinite nature’ cannot be so easily discarded. Even as a Peripatetic construct, it does not exclude the possibility that some of Anaximander’s intentions may reverberate in it.

If we generally compare the texts of Aristotle with texts based on Theophrastus, we can say that in contrast to Aristotle, who in fact does not explicitly connect Anaximander with τὸ ἀπειρον, in Theophrastus we repeatedly observe that τὸ ἀπειρον does indeed play the role of Anaximander’s ‘source and element’. It is important to note the absence of the substantive τὸ ἀπειρον in Aristotle, who describes Anaximander’s principle only as ‘one’ or ‘mixture’. And though both concepts may have subsequently been called τὸ ἀπειρον, Aristotle’s references in fact do not lend much support to Theophrastus’ explicit identification of τὸ ἀπειρον

²⁴Simplicius, *In Arist. Phys.* 9.154.14–23 = DK 12A9a = Gr Axr15 = TP2 Ar170. Translation heavily adapted.

²⁵Cf. Dox 479; Aristotle, *Met.* 989b17.

and the ἀρχή in Anaximander's thought. Therefore, the authenticity of the term τὸ ἄπειρον as Anaximander's principle may be doubted.²⁶

We can then suppose that it was Theophrastus—or one of the Peripatetics—who ascribed τὸ ἄπειρον to Anaximander as his principle. We could assume that it happened within their broader effort of systematizing of predecessors, to each of whom was ascribed his alleged ἀρχή. Given that in the first book of his treatise φυσικῶν δόξαι, which deals with 'beginnings', Theophrastus lists the early philosophers and ascribes each 'his' ἀρχή, it is legitimate to ask whether he, in Anaximander's case, created it, in a way.

In all likelihood, one may suppose that whoever coined the term did not arrive at his choice arbitrarily. One could hypothesise that τὸ ἄπειρον may be a substantive form of something which the Peripatetic scholars discerned in Anaximander's thought, but categorized in accordance with their own views. If it proved impossible to find in Anaximander's text (if available) a particular key term as a name for his ἀρχή, then they might have chosen an abstract concept which they thought was adequate to play this role. We may, however, also consider the possibility that their starting point was some particular term found in Anaximander's book. As we will show, it is reasonable to assume that the noun τὸ ἄπειρον originated from the adjective ἄπειρος.

Against such speculations could be adduced that both Simplicius and Hippolytus claimed that Anaximander was supposed to have been the first to refer to the ἀρχή by 'this term' (viz. ἄπειρος). The translation of the phrase πρῶτος τοῦτο τοῦνομα κομίσας τῆς ἀρχῆς is the subject of heated debate because it is not quite clear whether it refers to the term ἀρχή or to τὸ ἄπειρον. The former would imply a claim that Anaximander was the first to use the term ἀρχή. The latter would indicate that Anaximander was the first to apply the term τὸ ἄπειρον to the ἀρχή. In that case, Anaximander would be the first to refer to the beginning by the term τὸ ἄπειρον. According to Kahn, Dührsen and others, there can be hardly any doubt that its meaning is "the first one to apply the term 'source' (ἀρχή)".²⁷ In that case, the genitive τῆς ἀρχῆς after τοῦνομα has to be considered as a specific stylistic turn of phrase.²⁸ They also point to another passage, in which Simplicius undoubtedly pinpoints Anaximander as the first to call the substratum 'source'.²⁹ In yet another passage, however, Simplicius repeats that Anaximander was the first to posit a boundless substratum: ἄπειρον δὲ πρῶτος ὑπέθετο (sc. τὸ ὑποκείμενον).³⁰

²⁶Cf. Hobza (2004, 916–919).

²⁷Dührsen (2013, 270) and Kahn (1994, 30–32).

²⁸Cf. Kahn (1994, 30): "a mere stylistic variant for apposition", of the kind still used in English, e.g. in A.A. Milne's famous sentence in the first chapter of *Winnie-the-Pooh*: "Once upon a time, a very long time ago now, about last Friday, Winnie-the-Pooh lived in a forest all by himself under the name of Sanders."

²⁹Simplicius, *In Arist. Phys.* 9.150.23 = TP2 Ar169, not in Gr and DK. However, even if Simplicius is right, than Anaximander certainly did not use the word ἀρχή in the Aristotelian sense.

³⁰Simplicius, *In Arist. De caelo* 7.615.15 = TP2 Ar192, not in DK and Gr.

Kahn's argument that this passage is correct but irrelevant because it refers to Anaximander's doctrine and not to his terminology is rather weak, for it is hardly imaginable that Anaximander posited a boundless substratum without calling it 'boundless'.³¹ Kahn and Dühsen seem to argue decisively that no other thinker had taken τὸ ἄπειρον to mean principle or source.³² However, if Aristotle was correct in claiming that ἄπειρος was used by the early Ionian philosophers as a predicate of something else, then this argument does not seem so decisive after all. Simplicius repeats Aristotle's statement several times, adding the names of some natural philosophers:

These natural philosophers (...) considered matter from the viewpoint of the boundless, but of course they did not speak of the boundless as a substance but as an attribute (...) like Thales said of water, Anaximenes and Diogenes of air, and Anaximander of the in-between (element).³³

This is why we follow Graham (and others, such as KRS³⁴) in translating "being the first one to apply this term (sc. τὸ ἄπειρον) to the source", supposing that Simplicius intended its adjectival use: a boundless something, which he here tries to identify as the in-between element.

Simplicius repeats Aristotle's opinion that the early Ionian philosophers used 'boundless' as an adjective:

Most natural philosophers made the boundless into a predicate of something else (συμβεβηκὸς δέ τι τὸ ἄπειρον) (...).³⁵

In all likelihood they did not talk about the boundless as a substance but as a predicate (ὡς συμβεβηκὸς).³⁶

Similarly, Alexander of Aphrodisias invokes Anaximander explicitly:

(...) the others [sc. the natural philosophers] held the boundless and the limited to be a body of which the boundless and the limited is only a property (συμβεβηκὸς ἔχον). Some said water is boundless, others air, and other, like Anaximander, some in-between nature.³⁷

Both Simplicius and Alexander (following Theophrastus?) clearly considered 'boundless' to be a property of some in-between element, which they took to be Anaximander's principle. This is definitely not what Anaximander said. Scholars generally agree that the in-between element was at best a gloss of Aristotle, perhaps

³¹Cf. Kahn (1994, 31). Dancy (1989, 162, n. 34) calls Kahn's attempt 'lame'.

³²See Von Fritz in Kahn (1994, 32, n. 1) and Dühsen (2013, 270).

³³Simplicius, *In Arist. Phys.* 9.458.19–26 = TP1 Th419, not in DK and Gr; our translation. Similarly, in 9.452.30–32 = TP1 Th418, not in DK and Gr.

³⁴KRS (2007, 108–109).

³⁵Simplicius, *In Arist. Phys.* 9.452.30–453.1 = TP2 Ar172, not in DK and Gr; our translation.

³⁶Simplicius, *In Arist. Phys.* 9.458.19–26 = TP2 Ar173, not in DK and Gr; our translation. Wöhrle has 'natürlich', which seems somewhat too strong for εἰκότως.

³⁷Alexander of Aphrodisias, *In Arist. Met.* 1.47.19–24 = TP2 Ar81, not in DK and Gr; our translation.

meant to indicate something in Anaximander's thinking that he was not able to grasp within his terminology. What remains is that Anaximander, just like the other natural philosophers, used 'boundless' as a predicate of something else. In other words, when Simplicius uses the noun τὸ ἄπειρον, we must understand it as a kind of shorthand for 'that, whatever it was, which Anaximander made ἄπειρος a predicate of'. Simplicius, in commenting on Aristotle's *Physics* thus keeps closer to that source, whereas the less reliable texts that offer a survey of the tenets of the philosophers tend to simply use 'the boundless' to indicate Anaximander's principle instead of using 'boundless' as an attribute.

Alexander of Aphrodisias may also offer a solution to the interpretation of a confusing passage in Aristotle's *Metaphysics*, which has gone unnoticed in this context as far as we know:

We must inquire, with regard to the substance and nature of unity (τὸ ἓν), in which sense it exists. (...) whether that unity itself is a kind of substance – as the first Pythagoreans, and later Plato, both maintain – or whether rather some nature underlies it (ὑπόκειται τις φύσις), and we should give a more intelligible account of it, and more after the manner of the physicists; for of them one holds that 'the one' is love, another air, and another the boundless (ὁ δὲ τὸ ἄπειρον).³⁸

Here, Aristotle seems to state the opposite of what he advocates in *Physics* 203a16–17, namely that "all the physicists make some other nature a subject of which 'boundless' is a predicate". Alexander quotes the first half of this text, inserting the clarifying words τῷ ἐνὶ between ὑπόκειται and τις φύσις. He also paraphrases the second half, filling in some names:

Of them (sc. the natural philosophers) Empedocles called 'the one' love, Anaximenes air, and others the boundless (ἄλλοι δὲ τὸ ἄπειρον), so that each of them made a certain nature the subject of the one (τῷ ἐνὶ φύσιν τινὰ ὑπετίθετο).³⁹

Alexander does not fill in a third name, where we would normally expect to find Anaximander, but instead alters Aristotle's singular (ὁ δὲ) to plural (ἄλλοι δὲ). Apparently, Alexander does not recognize Anaximander as having 'the boundless' as his principle. In other texts, he consequently calls Anaximander's principle 'the (or 'some') in-between nature', but never 'the boundless'.⁴⁰ Obviously, he neither found in Aristotle nor in Theophrastus (whom he quotes elsewhere) an indication to use the name 'the boundless' for Anaximander's principle, so he concluded—wrongly, as we have seen—that the in-between element must have been ascribed to Anaximander. Moreover, Alexander repeats (as quoted above) Aristotle's line that the natural philosophers made 'boundless' a predicate of something else, and the only one he names there is Anaximander. From this it is clear why he could not

³⁸Aristotle, *Met.* 1053b9–16, not in DK, Gr, and TP; translation Armstrong, slightly adapted.

³⁹Alexander of Aphrodisias, *In Arist. Met.* 1.612.11–1 = TP2 As66, not in DK and Gr; our translation.

⁴⁰See Alexander of Aphrodisias, *In Arist. Met.* 1.45.14–24 = TP2 Ar80, not in DK and Gr; 1.47.19–24 = TP2 Ar81 not in DK and Gr; 1.60.8–10 = DK 12A16 = Gr Axi12 = TP2 Ar82; 1.61.17–22 = TP2 Ar83, not in DK and Gr.

insert Anaximander's name in a piece of text that makes 'the boundless' a subject instead of a predicate. That he changes Aristotle's singular to plural is not so strange after all: also in the case of 'air', Aristotle uses the singular, whereas Anaximenes and Diogenes of Apollonia are known to have made it a principle.⁴¹ Alexander apparently thinks of those natural philosophers of whom Aristotle in *Physics* 203a16–17 states that they all made 'boundless' a predicate of something else, be it water, air or whatever. In that case, he could use the expression 'the boundless' as a kind of shorthand for 'whatever they called boundless'.

If it is agreed that the natural philosophers, and Anaximander in particular, made 'boundless' a predicate of their so-called principle, the question remains as to which subject Anaximander made it a predicate of, if indeed it was neither one of the elements, an in-between element, nor a primeval 'mixture' of all of them. We will devote the next chapter to this question.

⁴¹Thomas Aquinas, in his *In duodecim libros Metaphysicorum expositio* Bk 10, Lesson 3, Sct 1962, mentions Diogenes (and not Anaximenes); for the third name he enters Melissus. Melissus, however, did not make 'one' a predicate of 'the boundless', but 'boundless' a predicate of 'being' (τὸ ὄν).

Chapter 5

Boundless Nature

In the previous chapters, we argued that Anaximander must have used ἄπειρος adjectively as an attribute or property of something else. Accordingly, the question has to be answered: What could it have been that ἄπειρος was an attribute of? It is strange that some authors, who also come to the conclusion that ἄπειρος must be understood as an attribute, do not take this next step. Burkert, for instance, writes: “man ist sich darüber einig, dass τὸ ἄπειρον bei Anaximander nicht den Begriff der Unendlichkeit, sondern ein Unendliches Etwas meinte”,¹ without indicating what this ‘Etwas’ could possibly be. Although Burkert suggests that Anaximander could have started by saying ἀρχὴ πάντων ἄπειρον (“das Neutrum des Adjektivs als Prädikat”), he thinks that Anaximander continued with ἐκ δὲ τοῦ ἀπείρου,² which makes ἄπειρος a subject, a ‘Begriff der Unendlichkeit’, instead of a predicate of something else, an ‘unendliches Etwas’.

Recently, Dührsen has devoted an extensive paragraph—“Das Apeiron: Kritische Bedenken gegenüber der substantivierte Form”—to the subject.³ In it, he expresses his reservations about the opinion of the majority of scholars, who hold that ‘the boundless’ is authentic,⁴ and concludes that “bei Aristoteles—also bei dem ältesten und letztlich allein maßgeblichen Zeugen für Anaximanders Prinzip—der Ausdruck τὸ ἄπειρον weder als echt anaximandrisch ausgegeben noch überhaupt besonders hervorgehoben wird” and “es spricht also viel dafür, dass die abstrakte Begrifflichkeit (...) in Wahrheit nicht dem Milesier, sondern dem Deskriptionssystem der aristotelisch-peripatetischen Doxographie angehört”.⁵ This also concurs with the conclusions of our previous chapters. According to Dührsen, the conceptual and structural distortion consists in a re-interpretation of a cosmological image as the chemical conception of qualitatively indifferent matter, within the context of

¹Burkert (1963, 118).

²Burkert (1963, 132, n. 100).

³Dührsen (2013, 271–273).

⁴Cf. Dührsen (2013, 271).

⁵Dührsen (2013, 273). See also 274: the expression τὸ ἄπειρον has to be considered as “ein Interpretament der peripatetischen Doxographie”. A similar statement appears on 276.

Aristotle's theory of the four elements.⁶ In the end, however, Dührsen does not ask of which subject ἄπειρος should be a predicate, but only suggests that within Anaximander's archaic-religious conceptions his ἀρχή was a divine, immortal, eternally living and moving steerer of the world.⁷

Almost twenty years earlier, Fehling devoted two chapters to the same question.⁸ In the first, he uses arguments similar to those in our preceding chapters to assert that in Aristotle's texts: "τὸ ἄπειρον aber ist (...) nicht das Unendliche' an sich, sondern nur das wovon jeweils 'unendlich' gesagt wird".⁹ In the second, he concludes: "Die schlichte Aussage, Prinzip Anaximanders sei 'das Apeiron', gab es bei Theophrast so wenig wie es sie bei Aristoteles gibt" and "vom 'Apeiron' Anaximanders bei Simplizius kann also keine Rede mehr sein".¹⁰ As radical as ever, Fehling's final standpoint is that the very word 'boundless' did not appear in Anaximander's text, which only contained words like ἀθάνατος and ἀνώλεθρος ('zeitlich ewig').¹¹ Aristotle, according to Fehling, held himself warranted in replacing Anaximander's predicate 'eternal' with 'boundless'. Here, however, he seems to overplay his hand: one cannot argue that according to Aristotle the physicists all used 'boundless' as a predicate, and at the same time that Aristotle introduced the word 'boundless' as a paraphrase of words meaning 'eternal'.¹² According to Fehling, Anaximander did not posit 'the boundless', not even 'something boundless', nor anything like an 'element' or a monistic 'Urstoff' out of which everything originates (and into which it will return).¹³ Instead, Fehling argues, he most probably referred to an eternal 'Urmasse' as found in some contemporary sources, e.g. Pherecydes' Χθονίη, Sanchuniathon's 'Schlamm' or the Earth of Genesis 1:2.¹⁴ In these texts, there was originally the Earth, on which land and sea were not yet separated, and this must have been the origin of which Anaximander spoke.¹⁵ This 'Urmasse' is virtually the same as Aristotle's ὕλη.¹⁶

⁶Cf. Dührsen (2013, 278).

⁷Cf. Dührsen (2013, 283–284).

⁸Fehling (1994, 76–86, Chap. 10): "Anaximander bei Aristoteles: kein 'Apeiron'", and 95–112, Chap. 12: "Die Doxographie: das sogenannte frg. 1 Anaximanders".

⁹Fehling (1994, 84).

¹⁰Fehling (1994, 110 and 102).

¹¹Fehling (1994, 83).

¹²In his denial of the doxographic tradition of Anaximander's cosmology, Fehling is also too apodictic. See Couprie (2004).

¹³See Fehling (1994, 71–75, Chap. 9): "Die Unwahrscheinlichkeit der Urstofflehre".

¹⁴Fehling (1994, 84–85), see also 152: "auf die Erde muß sich das ἀθάνατον καὶ ἀνώλεθρον Aristot. phys. 203b13 beziehen."

¹⁵Cf. Fehling (1994, 206).

¹⁶Cf. Fehling (1994, 112, n. 282). Aetius had already stated that "the boundless is nothing but ὕλη" (Aetius *Plac.* 1.3.3 = DK 12A14 = Gr Axr18 = TP2 Ar53), quoting Aristotle, *Phys.* 207b35 (= DK 12A14 = TP2 Ar4, not in Gr). For a critical evaluation of Fehling's opinion on Anaximander's cosmology, see Couprie (2004).

This speculative re-reading of Anaximander, which makes earth into his principle, in a sense, has not met with great acceptance.

As far as we know, Lebedev, in the second part of his article on Anaximander's ἄπειρον, is the only one to both straightforwardly suggest that τὸ ἄπειρον is not Anaximander's principle and to propose an alternative. He suggests χρόνος, time, as the word ἄπειρος could have been a predicate of. Following Burkert and West, Lebedev points to an Iranian source for Anaximander's cosmogony by associating Anaximander's Χρόνος with Zurvān. By asking what the qualities αἰδώς and ἀγήρω (mentioned by Hippolytus) are attributed to, he takes the words λέγει δὲ (sc. τὴν φύσιν) χρόνον as additional explanatory material and reconstructs an original that sounds like χρόνος ἄπειρος αἰδώς καὶ ἀγήρω.¹⁷ However, Lebedev's reading of Hippolytus' words as "he calls that nature 'time'" is quite unnatural. The words λέγει δὲ χρόνον κτλ., read most naturally as Hippolytus' rendition of Theophrastus' κατὰ τὴν τοῦ χρόνου τάξιν, meaning that everything has its own attributed time-span. This is the way it is also read by KRS, Graham and Wöhrle. Even Fehling, who mentions Lebedev several times with approval, rejects his main thesis that 'time' is the subject of 'boundless'.¹⁸ Moreover, in later publications, Lebedev himself retracts this interpretation. We will discuss his new interpretation further on in this chapter.

In the rest of this chapter we will put forward the suggestion that the adjective ἄπειρος was an attribute of the term φύσις, 'nature'. We will attempt to show that Anaximander spoke of φύσις ἄπειρος and that he meant 'nature' in some pregnant sense of the word. To elucidate this suggestion we will first look at the etymology of the word φύσις, followed by a discussion of its usage in Aristotle. Thereupon we will consider the relation of this term with the Milesian philosophers in general. And finally we will focus on Anaximander, advancing arguments from both ancient sources as well as from modern interpretations, looking more precisely at the rather frequent combination of two terms 'nature' (φύσις) and 'boundless' (ἄπειρος or τὸ ἄπειρον).

The primary and etymological meaning of φύσις is 'growth'.¹⁹ According to Chantraine, φύσις is one of the words that stem from an Indo-European suffix—*ti*—which were used to indicate actions or instruments, expressing the notion of a hidden but active power. So γένεσις meant the active principle of giving life, as in Homer, *Il.* IV, 246:

The Ocean which is the vital principle (γένεσις) of everything.²⁰

¹⁷Lebedev (1978, II, 58).

¹⁸Fehling (1994, 152, n. 371).

¹⁹Cf. Naddaf (2005, 12), Conche (1991, 79) and Kahn (1994, 201, n. 2).

²⁰Chantraine (1933, 283): "à l'origine, un suffixe—*ti*—a pu servir à former des noms d'agents ou d'instruments. (...) Mais ce qui est vivant c'est le système très particulier de noms d'action qui s'est constitué. Ils évoquent la notion en tant que puissance cachée, mais active. (...) Γένεσις signifie essentiellement le principe actif qui donne la vie". See also 275–7.

On the analogy of the general meaning of γένεσις as described by Chantraine, one might say that, generally speaking, the meaning of φύσις is the hidden but active power of growth. In Homer, the word φύσις occurs only once:

So saying, Argeiphontes gave me the herb, pulling it out of the ground, and showed me its nature (φύσιν αὐτοῦ ἔδειξε). At the root it was black, but its flower was like milk. Moly the gods call it, and it is hard for mortal men to dig; but the gods can do anything.²¹

Unfortunately, it is not clear what exactly Hermes showed to Odysseus. An old controversy exists whether φύσις here means ‘form’ or ‘growth’. Given the concrete description that follows, the term φύσις may have referred to the outer appearance of the plant, to its form—but that in itself is a result of growth. Moreover, Hermes did not pick the flower from the ground accidentally, since it was this very plant that offered protection to Odysseus from the charms of the goddess Circe. Probably, therefore, he may have referred to its effects, to demonstrate its nature, φύσις.²² In that case, the word φύσις means the active power of growth as it results in the essential character that grows in that specific herb. One might paraphrase that the general power of growth manifests itself in this specific plant as a magical force.

Patzer stresses that φύσις originally concerned the world of plants; the word for plant, φυτόν, is made from the same root φυ-. According to him, φύσις (growth) is transferred from the domain of plants to the other domains of life, until finally receiving its meaning of ‘nature’, ‘the most general order of the world of originating and perishing things’. According to Patzer, this development occurs particularly in the works of the first Presocratics.

In Herodotus, who evidently had no philosophical pretensions, φύσις is used often meaning ‘natural constitution’ or ‘character’ (Herodotus, *Histories* 1.89, 2.5, 2.19, 2.35, 2.45, 2.68, etc.), but even here the connotation of ‘growth’ plays in the background, for instance, when he describes the φύσις of the Egyptian country (Herodotus, *Histories* 2.5). Philosophically speaking, one may consider Plato, who sometimes uses the word φύσις as a synonym for ἰδέα or εἶδος (e.g. *Philebus* 25a), as the ultimate philosophical expression of this line of development.²³ Eventually, in the Peripatetic jargon, it became identical with the οὐσία of an individual thing.

In a crucial passage repeated by Simplicius and Alexander, of which we argued in Chap. 3 that Anaximander should be included among ‘all the physicists’, Aristotle says that ‘boundless’ is a predicate of ‘some nature’:

²¹Homer, *Od.* 1995, 302–306. Translation Murray.

²²Cf. Guthrie (1985, 82–83), Naddaf (2005, 13–14). Chantraine (1933, 283) translates, not quite consistently with the lines quoted above, “la vertu”.

²³Cf. Patzer (1993, 275). As regards Patzer’s opinion that φύσις originally pertained to the world of plants, a parallel with present-day English is noticeable: we say of plants and weeds that they *grow* in the pond, whereas we say of fish and frogs that they *live* in the pond.

all the physicists make some other nature – one of the so-called elements, water or air or the intermediate between these – a subject of which ‘boundless’ is a predicate (ὕποτιθέασιν ἑτέραν τινὰ φύσιν τῷ ἀπείρῳ).²⁴

On this, Fehling remarks: “φύσις ist hier wie oft (...) ‘etwas in der Natur Vorhandenes’; die Formulierung bedeutet dasselbe wie συμβεβηκός τινι ἑτέρῳ”.²⁵ In the same vein, Wicksteed and Cornford write in an explanatory footnote on ὑποτιθέασιν ἑτέραν τινὰ φύσιν τῷ ἀπείρῳ: “the physicists have an unlimited *something*”.²⁶ We think the renditions ‘etwas Vorhandenes’ and ‘something’ do not do full justice to the meaning here. Instead we might ask: Why does Aristotle here use the term ‘nature’ and not simply ‘something else’, ἕτερον τι?²⁷ To answer this question we will investigate, without intending to be exhaustive on a subject about which much has already been written, what Aristotle may have meant by using the term φύσις, ‘nature’.

Aristotle may have used the word ‘nature’ in a general sense, meaning something like ‘all that exists’ (except for the separate forms, such as the unmoved mover, which are without matter and are not part of the physical world).²⁸ In this way, for instance, he uses it right at the start of the *Physics*:

in the study of nature our first object must be to establish principles.²⁹

Even here, where speaking about an all-inclusive study, it should be noted that Aristotle chooses the word ‘nature’ (φύσις) and not ‘being’ (τὸ ὄν) or ‘the all’ (τὸ πᾶν), obviously because he wants to indicate that whatever exists is meant to be studied under the aspect of ‘growth’.

However, for Aristotle, the word ‘nature’ also has a more precise and technical meaning. In Aristotle’s definition, nature characterizes the common features of animals, plants and elements, which all:

have within themselves a principle of movement (or change) and rest – in some cases local only, in others quantitative, as in growth and shrinkage, and in others again qualitative, in the way of modification. (...) For nature is the principle and cause of motion and rest to those things and those things only, in which she inheres primarily (...).³⁰

Aristotle clearly does not restrict nature as a principle of motion to what we would call ‘living creatures’, such as plants and animals, since he also includes

²⁴Aristotle, *Phys.* 203a16–17, not in Gr and TP. Translation Wicksteed and Cornford, slightly adapted.

²⁵Fehling (1994, 80, n. 185).

²⁶Wicksteed and Cornford, 220, note b, their italics.

²⁷As we have seen in Chap. 3, Aristotle uses the expression τι ἄπειρον in *Physics* 203b16–20 and not φύσις ἄπειρον. There, however, he treats the question of the belief in the existence of something boundless or infinite so broadly for it to also include issues of time and calculation.

²⁸Cf. Bodnár (2012, 1).

²⁹Aristotle, *Phys.* 184a15. Translation Wicksteed and Cornford.

³⁰Aristotle, *Phys.* 192b13–23. Translation Wicksteed and Cornford.

elements and even natural objects in general. As the principle and cause of motion and rest within things, φύσις is also equivalent to γένεσις:

Again, *na-ture* is etymologically equivalent to *gene-sis* and (in Greek) is actually used as a synonym for it; nature, then, *qua* genesis proclaims itself as the path to nature *qua* goal (the Greek text reads: ἡ φύσις ἡ λεγομένη ὡς γένεσις ὁδός ἐστιν εἰς φύσιν).³¹

Or, in a less pretentious translation:

And still further, the nature spoken of as coming into being is a road into nature.³²

As is clear from these texts, for Aristotle, ‘nature’ is not only the principle of motion but also represents form, because nature, in the sense of genesis, inherently entails the form towards which the growth aims. Φύσις is the form at the end of motion and development, hence, the end of the process of generation:

That which is generated (...) grows (...) not towards its original state at birth, but towards its final state or goal. It is, then, the form that is nature (ἡ ἄρα μορφή φύσις).³³

In all its various uses, Aristotle, in describing the meaning of the term ‘nature’, never refers to something static, but always to the object of study under the aspect of growth, motion or change. When he discusses problems of matter and form, Aristotle points to yet another meaning of nature:

Now some hold that the nature and substantive existence of natural products resides in their material on the analogy of the wood of a bedstead or the bronze of a statue.³⁴

And further:

This then is one way of regarding ‘nature’ – as the ultimately underlying material of all things that have in themselves the principle of movement and change.³⁵

When speaking about the earliest philosophers, nature, in the sense of matter, is narrowly associated with the elements, matter being here the essence that remains during all changes:

And this is why some have said that it was earth that constituted the nature of things, some fire, some air, some water, and some several and some all of those elemental substances.³⁶

³¹Aristotle, *Phys.* 193b12–13. Translation Wicksteed and Cornford.

³²Aristotle, *Phys.* 193b12–13. Translation Sachs.

³³Aristotle, *Phys.* 193b18–20. Translation Wicksteed and Cornford, slightly adapted.

³⁴Aristotle, *Phys.* 193a9–12. Translation Wicksteed and Cornford.

³⁵Aristotle, *Phys.* 193a29–30. Translation Wicksteed and Cornford.

³⁶Aristotle, *Phys.* 193a21–23. Translation Wicksteed and Cornford. It is strange that Aristotle mentions ‘earth’ as the first element, even though he himself ascertains in *Metaphysics* 988b31 that none of the ‘physicists’ make earth a principle.

And elsewhere:

Of the first philosophers, the majority thought the principles (ἀρχαί) of all things were found only in the class of matter. For that of which all existing things (τὰ ὄντα) consist, and from which they come to be initially and into which they perish ultimately – the substance (οὐσία) continuing but changing in its attributes – this, they say, is the element (στοιχείον) and this the principle of existing things.³⁷

Aristotle identifies this ‘principle’ with

a certain nature (τις φύσις) [that] always exists, either one or more than one, from which everything else comes to be while it is preserved.³⁸

Aristotle calls those ancient philosophers who study ‘nature’: ‘the physicists’, ‘natural philosophers’ or ‘those who occupy themselves with nature’ (φυσικοί, φυσιολόγοι or οἱ δὲ περὶ φύσεως). It is not coincidental, Patzer notes, that the works of the early Presocratics were referred to as *Περὶ φύσεως* and that Aristotle called them *φυσιολόγοι*.³⁹ Schmalzriedt, however, argues that the early Presocratics had not yet used book titles, and that particularly the title *περὶ φύσεως* used in the doxography for the books of Anaximander and several other Presocratics dates to the later fifth century. Although his arguments and conclusions sound plausible, it is worth raising an interesting point on which Schmalzriedt is rather hesitant.⁴⁰ According to Simplicius, repeated twice, Melissus entitled his book *περὶ φύσεως ἢ περὶ τοῦ ὄντος*,⁴¹ whereas Gorgias is said to have entitled his book *περὶ τοῦ μὴ ὄντος ἢ περὶ φύσεως*.⁴² The most obvious interpretation, we think, is that both were intended as real book titles, with Gorgias’ book acting as a pun on Melissus’ title. Melissus’ title, in turn, reads as a polemical pun on *περὶ φύσεως*. Melissus’ paradoxical point then, was the identification of τὸ ὄν with φύσις, meaning that φύσις was not to be associated with growth and motion as in the early Presocratics, but with static being in the Eleatic sense. This seems to imply that the title *περὶ φύσεως* was used for at least one of those early books.⁴³

Of course this does not at all prove that Anaximander’s book was entitled *περὶ φύσεως*, but at least it indicates that the main concern of those early books was with φύσις. Although it does not appear in any direct fragment of any Milesian philosopher, we think it is legitimate to suppose that the term φύσις, which was later coined within the jargon of philosophy, may have been previously used by the Milesians in a sense that contained some of its original connotations. After Homer,

³⁷Aristotle, *Met.* 983b6–13 = DK 11A12 = Gr Ths15, not in TP1; translation slightly adapted.

³⁸Aristotle, *Met.* 983b17–19 = DK 11A12 = Gr Ths15, not in TP1.

³⁹Patzer (1993, esp. 276).

⁴⁰Schmalzriedt (1970, 71–2).

⁴¹Simplicius, *In Arist. Phys.* 9.70.16–17 = DK 30A4 = Gr Mls4, and *In De Caelo* 7.557.10–12 = DK 30A4 = Gr Mls5.

⁴²Sextus Empiricus, *Adv. math.* 7.65ff, DK 82B3.

⁴³So we tend to disagree with the apodictic statement “that *περὶ φύσεως* was common in his time, and no more than that” (KRS 2007, 103).

it occurs for the first time in Heraclitus of Ephesus, in whose work it is preserved in three fragments.⁴⁴ Heraclitus' repeated use of the term probably points to its common use among the Milesians, who we will discuss at the end of this chapter.

Several authors have stipulated that φύσις was the key word of the Ionian philosophers. It is striking that they are all so positive, even though the word is not directly documented among the Presocratics before Heraclitus. Guthrie, for instance, criticizing Aristotle's interpretation of what the Milesians meant, remarks: "not 'matter' (...) but rather 'nature' (*physis*) is the correct keyword."⁴⁵ And again, quoting Pohlenz: "the concept of *physis* is a creation of Ionian science, in which they sum up their new understanding of the world".⁴⁶ Naddaf starts his book on the Greek concept of nature with the observation that "although *physis* is absent from the writings of early Ionians (...) it is unanimously accepted (...) that the concept of *physis* was a creation of Ionian science".⁴⁷

The word φύσις, 'nature', in close relation to 'boundless', is repeated in several variations in Aristotle and in the doxography wherever Anaximander's 'principle' is at stake. Just before his quotation from Anaximander, Simplicius reports that his principle was none of the so-called elements but 'some other boundless nature':

Of those who say that it [sc. the element] is one and in motion and boundless, Anaximander, the son of Praxiades, of Miletus, the successor and student of Thales, said (εἶρηκε) the source and element of existing things was the boundless (...). And he says (λέγει) it is neither water nor any other of the so-called elements, but some other boundless nature (ἐτέραν τινὰ φύσιν ἄπειρον), from which come to be all the heavens and the worlds in them. (...) as he expresses (λέγων) in rather poetic terms.⁴⁸

It may seem at first glance that the last line is just an elaboration on the principle that was called in the previous sentence τὸ ἄπειρον, but since we do not know where Anaximander's fragment exactly begins, one cannot exclude the possibility that what is preserved here with the words ἐτέραν τινὰ φύσιν ἄπειρον is an authentic expression or at least its reflection. As Kahn remarks: "the obviously 'poetic' expression cannot be isolated from the long sentence in indirect discourse, which is introduced by the word λέγει and concluded by its repetition λέγων" just after the quotation.⁴⁹ If Kahn is right, Simplicius may have used the aforementioned phrase ἐτέραν τινὰ φύσιν ἄπειρον as a paraphrase, thus linking the actual quotation to 'boundless nature'.

Anaximander's ἀρχή is more often associated with the words ἄπειρος φύσις, 'boundless nature', and the like. Elsewhere in his commentary on Aristotle's

⁴⁴Sextus Empiricus, *Adv. math.* 7.132 = DK 22B1 = Gr Hct8; Stobaeus, *Anthol.* 3.1.178 = DK 22 B112 = Gr Hct123; Themistius, *Or.* 5.69b = DK 22B123 = Gr Hct75. Plutarch, *Camill.* 19.1 = DK 22B106 = Gr Hct20 is not a quotation from Heraclitus but a remark by Plutarch.

⁴⁵Guthrie (1985, 82).

⁴⁶Guthrie (1985, 82), cf. Pohlenz (1953, 426).

⁴⁷Naddaf (2005, 15), repeated in 63–64.

⁴⁸Simplicius, *In Arist. Phys.* 9.24.13 = DK 12A9 = Gr Axx9 = TP2 Ar163.

⁴⁹Cf. Kahn (1994, 166–167).

Physics, Simplicius uses the phrase ἄπειρόν τινα φύσιν again when he stresses the difference of Anaximander's principle from the elements and associates it with eternal motion:

Among those who took one and modifiable principle, Anaximander posited some boundless nature (ἄπειρόν τινα φύσιν), different from the four elements, as a principle. Its eternal motion (ἥς τὴν αἰδίον κίνησιν), he said, is the cause of the genesis of the heavens.⁵⁰

And again, in a slightly different way, he tries to reconstruct what Anaximander and Anaximenes have in common and where they differ:

(Anaximenes says, like Anaximander) that the underlying nature is single and boundless (μίαν φύσιν καὶ ἄπειρόν), but not indeterminate (ἀόριστον), as he says, but determinate, calling it air.⁵¹

Elsewhere, Simplicius twice uses the words τὴν τε τοῦ ἀπείρου φύσιν. In the first case, when pointing to a similarity between Anaximander's and Anaxagoras' conceptions:

And if one supposes that the mixture of all things has a single nature indefinite (μίαν φύσιν ἀόριστον) in form and size, one is forced to say that [in the case of Anaxagoras] there are two principles, the nature of the infinite (τὴν τε τοῦ ἀπείρου φύσιν) and mind. In doing so, he seems to conceive of the corporeal elements just like Anaximander.⁵²

In another context, when contrasting Anaximander with Anaxagoras and Empedocles:

Therefore those who took the boundless (τὸ ἄπειρον) as principle (...) and who regard it as the origin of all things were satisfied with the nature of the boundless (ἠρκέσθησαν τῇ τοῦ ἀπείρου φύσει) (...). Of these Anaximander (...).⁵³

In these passages, Simplicius seems to use a construction with a *genitivus explicativus*: 'nature, namely the boundless'.⁵⁴ Analogous phrases also appear in other passages based on Theophrastus. Hippolytus, for instance, also refers to the 'nature of the boundless':

Anaximander (...) said the source and element of existing things was a certain nature of the boundless (φύσιν τοῦ ἀπείρου) (...).⁵⁵

⁵⁰Simplicius, *In Arist. Phys.* 9.41.16–21 = TP2 Ar167, not in DK and Gr. Our translation; for the rendition of κινουμένον as 'modifiable', see Cornford's translation.

⁵¹Simplicius, *In Arist. Phys.* 9.24.13–25 = DK 13A5 = Gr Axs3 = TP2 Ar163.

⁵²Simplicius, *In Arist. Phys.* 9.26.31–27.23 = DK 59A41 = Gr Axx32 = TP2 Ar164; translation adapted. The same quotation from Theophrastus appears in 9.154.14–23 = DK 12A9a = Gr Axx15 = TP2 Ar170.

⁵³Simplicius, *In Arist. Phys.* 9.464.19–465.17 = TP2 Ar175, not in DK and Gr; our translation.

⁵⁴Cf. Homer, *Il.* V, 553: τέλος θανάτοιο; Aeschylus, *Septem contra Thebas* 906: θανάτου τέλος.

⁵⁵Hippolytus, *Ref.* I.6.1 = DK 12A11 = Gr Axx10 = TP2 Ar75.

Cicero reverses the relation in speaking of the ‘boundlessness of nature’ or ‘the boundless, namely nature’. This results in a drastic change of meaning, viz. nature as an originating power, the principle of growth in the universe:

He [sc. Anaximander], to wit, said that there is a boundlessness of nature (*infinitatem naturae*) out of which everything generates.⁵⁶

Surveying these texts one gets the impression that at times ‘nature’ means no more than a simple ‘something’. Sometimes Simplicius literally talks about ‘*something* boundless’. For example, when treating the question whether one of the so-called elements could be boundless, he says that there cannot exist something that is both unique and boundless (τι ἐν ἄπειρον) as regards place, because it would destroy all else.⁵⁷ Here, the word τι takes the place of φύσις. We occasionally find this diminutive of φύσις in translations. Guthrie, for instance, translates Simplicius’ above-quoted words ἐτέραν τινα φύσιν ἄπειρον as ‘a different substance which is boundless’, a kind of equivalent of τι ἄλλο (‘something else’) at the end of the same text.⁵⁸ This diminutive is, however, just the ultimate result of worn-out Peripatetic jargon, behind which, we would argue, a more pregnant meaning of the word φύσις within the cosmology of the early Ionian philosophers is concealed.

Some modern authors go even further than generally calling φύσις the key word of the Ionian philosophers to hint at the possibility that the word φύσις specifically played a central role in Anaximander. Naddaf is one of those who stress the importance of the concept of nature in understanding Ionian thinking. According to him and, as he says, the vast majority of ancient and modern commentators, “the primary goal of written pre-Socratic works was to provide a *historia peri phuseōs*, an investigation into the nature of things.” Accordingly, “(...) the early Ionians took ‘all things’ (*ta panta*) or ‘the universe’ (*to pan* or *to holon*) as their primary object of study. In the expression *historia peri phuseōs*, it is this comprehensive sense that must be understood by the word *phusis*”.⁵⁹ He interprets ‘nature’ in this context as “comprising three things: (1) the absolute *archē*, that is, the element or cause that is both the primary constituent and the primary generator of all things; (2) the process of growth strictly speaking; and (3) the outcome, product or result of this process”.⁶⁰ In short: “*Phusis* in the sense of origin, process, and result”.⁶¹

From our point of view, the most interesting pages of Naddaf’s book are those in which he deals with Anaximander’s *historia peri phuseōs*. First of all, we must note that he has nothing at all to say on the adjectival use of ἄπειρος. Secondly, Naddaf has a quite traditional conception of τὸ ἄπειρον, which he understands as “an

⁵⁶Cicero, *Acad. pr.* II.37.118 = DK 12A13 = TP2 Ar28, not in Gr; our translation.

⁵⁷Simplicius, *In Arist. Phys.* 9.484.5–14 = TP2 Ar177, not in DK and Gr.

⁵⁸Guthrie (1985, 76); Simplicius, *In Arist. Phys.* 9.24.13–25 = DK 12A9 = Gr Axr9 = TP2 Ar163.

⁵⁹Naddaf (2005, 64).

⁶⁰Naddaf (2005, 20), repeated in 64.

⁶¹*Ibidem*.

enormous mass that is both spatially and qualitatively indefinite. (...). In sum, the universe emerged from qualitatively and spatially indeterminate *phusis*”,⁶² “an *apeiron migma* (...) a substance from which all things emerged”.⁶³ However, the identification of ‘mass’, ‘*phusis*’, ‘substance’ and ‘*migma*’ does not help very much to make sense of his conception. In the third place, the identification of the boundless and nature, as well as the role of the boundless itself, are restricted to the very beginning (“the chronological starting point”)⁶⁴ of the process. This “apeiron (which) initiated the process”⁶⁵ is treated in the section “the *Phusis* as *Archē*”, starting with the words: “Anaximander used the term *to apeiron* to characterize *phusis* as *archē*”.⁶⁶ When Naddaf comes to speak about the notions of φύσις as process and φύσις as result, the concept of ‘the boundless’ plays no role whatever and is no longer mentioned, with one exception that we will come to discuss below.⁶⁷ We may well ask what qualifications like ‘deathless’, ‘imperishable’, ‘indestructible’, ‘to encompass and to steer all things’, ‘the source to provide abundantly for things coming to be’ and Naddaf’s explicit assurance that the boundless is “infinite eternal” or “temporally eternal”⁶⁸ may mean when the boundless is confined to the initial stage of the process.

In starting his discussion of the formation of the cosmos, Naddaf uses the equivocal turn of phrase: “if we are to imagine Anaximander’s *apeiron* as in a state of dynamic equilibrium at point zero”,⁶⁹ which could be read either as another description of the boundless as μῦγμα and confined to the very first stage, or as though there are also other, later phases in which the boundless is not in a state of equilibrium. How these later phases should be conceived, however, he does not tell. In the same context of the formation of the cosmos, Naddaf’s characterization of the boundless changes to “the eternal movement or vital force of the *apeiron*”, which “is a natural primordial creative force”, a “principle of movement”, the “eternal vital force”.⁷⁰ Not only is it far from clear how this should concur with the qualifications given earlier, it also seems to give no more than lip-service, for in the rest of the pages on the formation and shape of the cosmos this characterization is never mentioned again.

In a sense, Naddaf replaces ‘boundless’ as Anaximander’s keyword with ‘nature’. It is rather disappointing, however, that from the very beginning he burdens

⁶²Naddaf (2005, 70).

⁶³Naddaf (2005, 69); the last words with obvious consent are quoted from McDiarmid (1953, 198–200).

⁶⁴Naddaf (2005, 65).

⁶⁵Naddaf (2005, 66).

⁶⁶Naddaf (2005, 65).

⁶⁷Naddaf (2005, 70–112), see also the Index of Concepts and Proper Names, s.v. *apeiron*. We resist the temptation to discuss these pages here, for their content falls outside the range of this chapter.

⁶⁸Naddaf (2005, 67 and 69).

⁶⁹Naddaf (2005, 71).

⁷⁰Naddaf (2005, 71–72).

the word φύσις with a whole variety of meanings, ‘all there is’, ‘origin’, ‘process’ and ‘result’, all of which sound fairly Aristotelian, whereas that which we consider the central and original meaning, i.e. the power of growth, the eternal vital force, the acting principle that is present everywhere in the development of the world from the beginning to the end and hence called ‘boundless’, is mentioned only accidentally.

Havelock has suggested that “an item like ‘some different, non-finite nature’ [ἐτέραν τινὰ φύσιν ἄπειρον] represents the kind of language Anaximander may have used, consistent with the attributive usage in his Presocratic successors”, and again: “one can hazard the guess that Anaximander spoke of an *apeirōn phusis*”, using, like Empedocles, the epic form.⁷¹ Unfortunately, Havelock, who critically scrutinizes practically every single word used in connection with Anaximander, does not apply the same process for the word φύσις. So we are not informed about his interpretation of ἀπείρων φύσις, even though he regards it as truly Anaximandrian. The occasional hints he gives are not very consistent and at one place he maintains that what Anaximander may have said was something like “from the beginning the nature of the all was, is, and ever shall be non-finite”.⁷² When reconstructing Anaximander’s “imaginary hexameters”, however, he writes: “for from a life without-end does the nature of all things exist”.⁷³ It is strange that in the last quotation he does not make the adjective ἀπείρων belong to φύσις but to αἰών.

As we already observed, Lebedev later rejected his own hypothesis that Anaximander spoke of Χρόνος ἄπειρος. The reason for this was his discovery of some neglected paraphrases of B1, which convinced him that Anaximander spoke about ‘prefixed time’, and not about personified Time.⁷⁴ He now maintains that Anaximander’s authentic terms, which were replaced in the later doxography by the fourth-century term TO APEIRON, were Φύσις ἄπειρος ἄδιος καὶ ἀγήρως. He interprets this as an Anaxagorean type of ‘mixture’ of simple stuffs, which he partially bases on a questionable interpretation of a passage from Simplicius, which we discussed in Chap. 4.⁷⁵ The passage in question reads:

⁷¹Havelock (1983, 54 and 55).

⁷²Havelock (1983, 59).

⁷³Havelock (1983, 81).

⁷⁴See Lebedev (1981, 1988): Heraclitus the Allegorist (*Quaest. Hom.* 22.10): πᾶν γὰρ τὸ φύομενον ἐκ τινων εἰς ταῦτα ἀναλύεται διαφθειρόμενον, ὥσπερ εἰ τῆς φύσεως ἀδεδάνεικεν ἐν ἀρχῇ χρέα κομιζομένης ἐπὶ τέλει. “Anything that is generated from some (elements), into the same (elements) decomposes when it passes away, as if the nature were taking back at the end what she has lent as a loan in the beginning”; and Philo of Alexandria (*De posteritate Caini*, 5): καὶ γὰρ αἱ τῶν τετελευτηκότων ἀναστοιχειούμεναι μοῖραι πάλιν εἰς τὰς τοῦ παντός δυνάμεις ἐξ ὧν συνέστησαν ἀποκρίνονται, τοῦ δανεισθέντος ἐκάστωι δανείσματος κατὰ προθεσμίας ἀνίσους ἀποδομένου τῇ συμβαλοῦσιν φύσει, ὅποτε βουλευθεῖντα ἐαυτῆς χρέα κομίζεσθαι. “For in the same way the constitutive parts (*moirai*) of corpses, being resolved into the original elements, are excreted into the same powers (*dynameis*) of the Universe out of which they have been composed: the loan that has been lent to every creature is given back at unequal prefixed terms to nature the creditor whenever she wishes to take back what is due to her” (Lebedev’s translation).

⁷⁵Cf. Lebedev (1981, 1988, 55.)

And Theophrastus says that Anaxagoras sounds like Anaximander in this: for ἐκεῖνος says that in the segregation of the boundless, like things travel towards each other (...).⁷⁶

Lebedev maintains that “there is no reason anymore to doubt the validity of the evidence of Theophrastus (ap. Simplicius *Phys.* 27.11 sq.) about the close affinity between Anaxagoras’ and Anaximander’s concepts of matter; ἐκεῖνος in Simplicius’ quotation refers to Anaximander, not to Anaxagoras”.⁷⁷ According to our conclusion in Chap. 4, however, ἐκεῖνος refers to Anaxagoras. Moreover, Lebedev’s new interpretation implies that Anaximander’s alleged principle has no place within the cosmos and is restricted to its very beginning. And as it is a purely material principle, it would need another principle as an active agent, such as Anaxagoras’ Νοῦς, as Simplicius rightly remarks at the end of the passage from which we quoted above.

The only other one we know of who has taken φύσις seriously as Anaximander’s key term is Conche, who dedicates a chapter of his book on Anaximander to “La ‘physis’”.⁷⁸ He notes that for the Ionian ‘physicists’ the word φύσις meant “l’action de faire naître et pousser”.⁷⁹ Anaximander’s ‘nature’, he says, is the power of which Parmenides will deny the possibility, namely γένεσις, “la source génératrice universelle”, “acte de faire être ce qui n’était pas, de faire passer du non-être à l’être”, “principe de croissance des êtres”.⁸⁰ In this context, Conche uses ‘boundless’ as an attribute of ‘nature’: “l’infinité de la nature (cf. φύσις ἄπειρος, Simplicius, *In phys.* 9.24.17)”, and also in his translation and discussion of Cicero’s above-mentioned text.⁸¹ He uses expressions like “la *physis apeiros*, en tant que principe de tout” and “la *physis*, objet premier de la *philosophia*”. “Être”, Conche says, is identical to “être une production de la *physis*” and “φύσις équivaut à γένεσις”.⁸² And finally he coins the expression “la φύσις d’Anaximandre”.⁸³ Elsewhere, Conche identifies this *physis* with the boundless: “cette *physis* qu’est l’*apeiron*”, “un autre nom pour l’infini est φύσις, la nature”.⁸⁴ And again elsewhere he seems to identify φύσις with αἰών, when he translates αἰὼν ἄπειρος as “force vitale infinie” and “l’éternité de vie qu’Anaximandre accorde à la nature”.⁸⁵ Similarly, Naddaf in the same passage

⁷⁶Simplicius, *In Arist. Phys.* 9.27.2–23 = DK 59A41 = TP2 Ar164 = Gr Axx32.

⁷⁷Lebedev (1981).

⁷⁸Conche (1991, Chap. III).

⁷⁹Conche (1991, 81).

⁸⁰Conche (1991, 80, 81, 128, 151).

⁸¹Conche (1991, 83 and 85). Simplicius’ text quoted above as *In Arist. Phys.* 9.24.13–25 = DK 12A9 = TP2 Ar163 = Gr Axx 9. For Cicero, see footnote 56.

⁸²Conche (1991, 81 and 80).

⁸³Conche (1991, 129).

⁸⁴Conche (1991, 82 and 128).

⁸⁵Conche (1991, 138), in his translation of Pseudo-Plutarch, *Strom.* 2 = DK 12A10 = Gr Axx19 = TP2 Ar101.

translates the words ἐκ τοῦ αἰδίου as “from the eternal vital force”.⁸⁶ In the next chapter, though, we will suggest another translation for these words.

From our analysis of the texts of Aristotle and the doxography, we conclude that what Anaximander has to say does not fit into the Peripatetic frame, which requires all Ionian philosophers to have a ‘material’ principle, be it water, air or whatever else. Moreover, as we have tried to make acceptable, there are indications that these texts go back to original wordings of Anaximander, in which φύσις ἄπειρος had another, more pregnant meaning than those offered by the Peripatetic rendition of the doxographers, and which even modern interpreters of Anaximander seem not to be able to avoid.

Aristotle in the *Physics* says something in which the ancient notion of the word still reverberates:

nature is the principle of everything that exists (ἡ φύσις ἀρχή).⁸⁷

If the authors mentioned above are right in saying that φύσις is the key concept of the Ionian philosophers, and if Havelock is right in saying that φύσις ἀπείρων mirrors Anaximander’s language, then φύσις cannot be just ‘something’, nor ‘nature’ in the meaning of ‘all that exists’, for then it cannot be the ἀρχή. This is implied in Conche’s quote: “la *physis apeiros*, en tant que principe de tout”. Our suggestion, which comes rather close to Conche’s, is that Anaximander used the word φύσις in the pregnant sense and spoke of boundless nature (φύσις ἄπειρος) as meaning something like ‘the boundless, inexhaustible power that generates all things and makes them move and grow’.

Among modern authors, a meaning like this is occasionally included in the interpretation of τὸ ἄπειρον, e.g. when Kahn, speaking about the boundless, uses expressions like “an inexhaustible store of *creative power*” and “the living, divine *force of natural change*”.⁸⁸ However, how that can go together with his characterization of the boundless as “a huge mass, stretching away in every direction” and “in fact what we call infinite space”,⁸⁹ he does not reveal. Similarly, Naddaf, as we have seen, occasionally uses expressions like “*apeiron* is a natural primordial *creative force*”.⁹⁰

The name, ‘natural philosophers’, distinguishes them from moral philosophers like Socrates. But it also indicates their rejection of the Olympic gods as powers behind everything, by instead favouring natural explanations of the phenomena. Nevertheless, Thales is still said to have used the expression:

everything is full of gods.⁹¹

⁸⁶Naddaf (2005, 72).

⁸⁷Aristotle, *Phys.* 253b8.

⁸⁸Kahn (1994, 237 and 238).

⁸⁹Kahn (1994, 233).

⁹⁰Naddaf (2005, 70), second italics ours.

⁹¹Aristotle, *De an.* 411a7–8 = DK 11A22 = TP1 Th32 = Gr Ths35.

If we trust Aristotle, then Anaximander does not indicate his principle with the personal word ‘god’ (ὁ θεός), but with the neuter ‘the divine’ (τὸ θεῖον):

[The boundless] can be considered as the source of everything else and to contain all things and steer all things (...), and this is the divine, for it is deathless and imperishable, as Anaximander says.⁹²

In an interesting passage, Stobaeus paraphrases and at the same time elucidates Aristotle’s formula “the source of everything else, which contains all things and steers all things”. He first quotes Aetius:

Thales says that God is the mind of the world, and the totality is at once animate and *full of deities*. And a divine power pervades the elemental moisture and moves it. Anaximander made clear that the infinite heavens are gods. Anaximenes (said that) the air [is God].⁹³

Stobaeus then remarks:

It is necessary in the case of such remarks to understand that they indicate *the powers pervading the elements or bodies*.⁹⁴

Obviously, these words are related to all three Milesians. When we apply them to Anaximander, it means there is some universal and divine power which reigns over and pervades all that exists: it is present and presents itself in everything that exists and is responsible for all existence as well as for all movement and growth. It generates the heavens and the worlds within them, it makes the celestial wheels turn incessantly around the Earth, it generates the individual things and makes them move, and in the case of plants and animals, makes them grow. Or the other way round: in everything around us, be it a flower, an animal, a magnetic stone, a volcano, a river, the sea, the Sun, the Moon, the stars, a universal and divine power (φύσις) is present and shows itself. The gods, so to speak, descend from Olympus to personify the power of nature in everything that exists. Thus, the real divinity becomes united with the natural explanation for everything that exists, persists, grows and moves. This tradition has retrospectively flattened out this effort into an ‘investigation into nature’.

In Chap. 2, we drew attention to another meaning of the word ἄπειρος, which, in its undocumented but grammatically correct passive use can be rendered as ‘that which cannot be experienced’ or that which is ‘beyond our experience’. We also suggested that this meaning was still felt by the early Ionian philosophers. Something can be beyond our experience because it is simply behind our horizon. Something can also be beyond our experience because it is, as a result of the human condition, beyond the reach of our senses. We can only hear, for instance, sounds within a certain range of pitch. Philosophically more interesting is that something can be beyond our experience in a more principle way, because it does not belong

⁹²Aristotle, *Phys.* 203b3–30 = DK 12A15 = TP2 Ar2 = Gr Axr16.

⁹³Stobaeus, *Anthol.* 1.1.29b = DK 11A23 = Gr Ths37 = TP1 Th340 (our italics), +TP2 Ar142 (not in DK and Gr), +DK 13A10 = TP2 As119 = Gr Axs38.

⁹⁴Stobaeus, *Anthol.* 1.1.29b = DK 13A10 = TP2 As119 = Gr Axs38, our italics.

to the realm of sensible experience, although it may show itself in what is experienced. Heraclitus is the first of the ancient thinkers of which we have fragments to use the word φύσις. We read his famous words in fragment DK 123 as an exemplification of φύσις ἄπειρος in this alternative meaning:

nature loves to hide (φύσις κρύπτεσθαι φιλεῖ).⁹⁵

Graham argues at length that φιλεῖν plus the infinitive is never used as ‘love to’, but always expresses what he calls a general truth. This means that he regards the usual translation “nature loves to hide”, or even “nature loves to play hide-and-seek”⁹⁶ as wrong. He translates “nature hides”, or “nature is ever hidden”, or “a nature is hidden”.⁹⁷ Against this, Mouraviev adduces two examples, in Heraclitus and Democritus, where a translation as “like to do” or “be wont” is at least possible.⁹⁸

However this may be, for our interpretation it is important that Heraclitus characterizes ‘nature’ as somehow ‘hidden’. We might say that nature which hides itself is hidden (κρυπτός) and inaccessible (ἄπειρος) to normal human beings. Heraclitus’ lines remind us of the passage in Homer we discussed earlier, in which the god shows Odysseus the φύσις of a plant.⁹⁹ For Heraclitus, it is not the god that shows the secret of a specific plant’s nature to a privileged man like Odysseus, but hidden nature as such reveals itself through its manifestations¹⁰⁰ to the privileged, which is the wise man (σόφος), as laid out in the following fragment:

(...) at the beginning of his *On Nature* the aforesaid man indicates the environment in a certain way when he says: (...) For although all things happen according to this Word (κατὰ τὸν λόγον τόνδε) they [sc. uncomprehending men: ἄζύνετοι] seem as if ignorant (ἀπείροισιν εἰκόασι) when they try to understand (πειρώμενοι) words and deeds such as I explain when I distinguish each thing according to its nature (κατὰ φύσιν) and show how it is. Other men, however, are unaware of what they do when they are awake just as they forget what they do when they are asleep.¹⁰¹

It is intriguing to see how Heraclitus here uses ἄπειρος in the meaning of ‘inexperienced’ or ‘ignorant’ (Graham translates it as ‘unexperienced’). We might paraphrase it thus: “nature is hidden, unexperienced, beyond the experience of inexperienced people”. This hidden nature can only be perceived by the wise man, whose wisdom behoves him to carefully listen to whatever it has to say:

⁹⁵Themistius, *Or.* 5.69b = DK 22B123 = Gr Hct75.

⁹⁶Respectively in Kahn (1979, 105) and Heidel (1910, 107).

⁹⁷The first two translations appear in Graham (2003, 178); the third translation is from Graham (2010, 161). Schmalzriedt (1970, 114) translates: “Die φύσις pflegt verborgen zu sein”.

⁹⁸Mouraviev (2006, 140). Heraclitus: Plutarch, *De aud. poet.* 41a = DK 22B87 = Gr Hct16, Democritus: Stobaeus, *Anthol.* 3.16.18 = DK 68B228 = Gr Dmc256.

⁹⁹Homer, *Od.* X, 302–306.

¹⁰⁰Cf. Conche (1986, 255): “la nature ne nous montre, ne met sous nos yeux, que l’aboutissement de son geste, non le geste même”.

¹⁰¹Sextus Empiricus, *Adv. math.* 7.132 = DK 22B1 = Gr Hct8, translation adapted.

Sound thinking is the greatest virtue and wisdom: to speak the truth and to act in concordance with nature (κατὰ φύσιν), listening to it.¹⁰²

In much a similar vein, we believe that Anaximander's conception of boundless nature must also be understood.

¹⁰²Stobaeus, *Anthol.* 3.1.178 = DK 22B112 = Gr Hct123.

Chapter 6

Gonimon

Based on secondary reports, one can assume that the works of the Presocratics dealt with the origin of the world, its appearance and transformations. These issues were expressed, as we will demonstrate, in words that describe the features of life. Living beings can move by themselves and we are used to thinking that this is what distinguishes them from ‘inanimate’ nature. The Milesians, however, understood life in a broader sense than is immediately apparent. Their theories of nature are known as hylozoism, which means that they understood matter to have the property of life and growth.¹ For Thales, for instance, life has a much broader range of manifestations, taking on a broader scope. Characteristically, when Aristotle in his *De anima* defines the soul as a principle of movement, he mentions Thales, saying:

It appears from what is recounted of him that Thales too understood the soul to be a source of motion, since he said the lodestone has a soul because it moves iron.²

According to Diogenes Laertius and a collection of scholia, the stone in question was magnetite; he also mentions ‘electron’, which is amber.³ Aristotle broadens this idea on to a more general level:

Some say that [soul] is mixed in the totality; this is perhaps the reason Thales thought all things are full of gods.⁴

Anaximenes likens our souls to air and defines the world in terms of air and breeze. The air that serves as evidence of our life can also be detected in the form of a gust of wind elsewhere in nature, and so air is a kind of world-soul:

Anaximenes, son of Eurystratus, of Miletus, declared air to be the source of beings. For from this do all things arise and back into it do all things dissolve. As our soul, he says,

¹Cf. Furley (1987, 18), Naddaf (2005, 66).

²Aristotle, *De an.* 405a19 = DK 11A22 = Gr Axr34 = TP1 Th31.

³DL I.24 = DK 11A1 = Gr Ths1 = TP1 Th237; *Schol. Plat. Rem publ.* 600a = DK 11A3 = TP1 Th578, not in Gr.

⁴Aristotle, *De an.* 411a7 = DK 11A22 = Gr Ths35 = TP1 Th32.

which is air, controls us, so do breath and air encompass the whole world (κόσμος). (He uses the terms ‘air’ and ‘breath’ synonymously.)⁵

Air is not only the source of movement and the principle of everything, but it is also an expression of the breath and of the soul; an analogy of movement and life. This highlights a connection to ancient traditions, which perceive the air as intimately linked with life. One might then assume that the Peripatetic concept of ‘origin’ reflects an ancient emphasis on the essential manifestations of life, which may be considered as an essential part of the Milesian intellectual tradition.

In previous chapters, we argued that where others used words like ‘soul’, ‘life’, ‘air’, ‘water’ or even ‘god’, an expression like φύσις ἄπειρος, ‘boundless nature’, may be close to Anaximander’s original expression of his fundamental concept which fulfils a similar role. Anaximander’s way of speaking about coming to be and perishing in time by the eternal activity of the power of nature, however, does not fit the Peripatetic interpretation. Over the years, after the sensitivity to the Ionian way of perceiving the world was lost, this concept was ‘translated’ in the Peripatetic system and within the framework of the theory of elements, as τὸ ἄπειρον.

In this chapter we will try to recover some of Anaximander’s original cosmogony behind the Peripatetic tradition in which it was handed down. How the creation of the world (γένεσις τοῦ κόσμου), the cosmogony, took place according to Anaximander is described in a notoriously difficult passage from Eusebius (quoting Pseudo-Plutarch), which starts:

φησὶ δὲ τὸ ἐκ τοῦ αἰδίου γόνιμον θερμοῦ τε καὶ ψυχροῦ κατὰ τὴν γένεσιν τοῦδε τοῦ κόσμου ἀποκριθῆναι.⁶

We follow the usual reading, as Graham does in his collection of fragments. In a previous book he reads τὸ ἐκ τοῦ αἰδίου γόνιμον (as does Kahn), following Diels’ tentative emendation (“fortasse”) instead of τὸ ἐκ τοῦ αἰδίου γόνιμον of the manuscripts.⁷ In Kahn’s translation, τὸ αἶδιον is another word for τὸ ἄπειρον: “something capable of generating hot and cold was separated off from the eternal [Boundless]”.⁸ Apparently applying the same identification, Graham translates both times: “that part of the everlasting which is generative of hot and cold separated off at the coming to be of the world-order”.⁹ McKirahan translates the text in a similar way, but reads it as though heat and cold are generated by the γόνιμον without already being present in ‘the eternal’, which he also reads as another name for ‘the *apeiron*’:

⁵Aetius, *Plac.* I.3.4 = DK 13B2 = Gr Axs8 = TP2 As35; translation slightly adapted.

⁶Pseudo-Plutarch, *Strom.* 2 = DK 12A10 = Gr Axr19 = TP2 Ar101.

⁷Graham (2006, 7); cf. Kahn (1994, 57); Dox 579, note at line 13.

⁸Kahn (1994, 57).

⁹Graham (2006, 7) and Gr Axs8.

He declares that what arose from the eternal and is productive of [or: capable of giving birth to] hot and cold was separated off at the coming to be of this kosmos.¹⁰

McKirahan explicitly remarks: “Since the *apeiron* is neither hot nor cold, it does not favor either opposite over the other (...). Anaximander’s solution is to declare that hot and cold arose from something capable of giving birth to hot and cold, and this thing is ‘separated off’ from the *apeiron*”. Finkelberg, however, argues that this is not grammatically correct and translates: “At the beginning of this world occurred the separation-off of that in the Eternal which was productive of hot and cold”.¹¹

In spite of their differences, in all these translations ‘the everlasting’ (τὸ αἰδίων) is interpreted as just another word for ‘the boundless’ (τὸ ἄπειρον). As Graham declares apodictically: “according to Anaximander, the original state of affairs consisted of some everlasting stuff, which he elsewhere calls ‘the Boundless’”.¹² From this ‘boundless’, τὸ γόνιμον is originally a part that breaks off, which eventually leads to the origin of the world. Or, in the words of Heidel, the world is regarded here as “a slice cut off from the infinite”, as in Leucippus, where the worlds are said to originate κατὰ ἀποτομὴν ἐκ τοῦ ἀπείρου.¹³

Another note is struck by Naddaf, who translates ἐκ τοῦ αἰδίου, in words that echo Conche’s interpretation (which we discussed in the previous chapter), as ‘from the eternal vital force’:

He states that what produces hot and cold (i.e., a germ) was secreted from (or separated/ejected from) the eternal vital force during the generation of this universe.¹⁴

This translation also identifies τὸ αἰδίων with τὸ ἄπειρον, but differs from the others because it does not read the text as if something had been cut off from a kind of primeval boundless matter, but as indicating some quasi-biological process. We will return to this idea below.

The reasons for the identification of ‘the everlasting’ and ‘the boundless’ are, however, not as cogent as they might seem. An alternative reading is suggested independently by Gregory and Kočandrle, who take ‘hot and cold’ to belong to τὸ αἰδίων (all in the genitive), instead of to τὸ γόνιμον:

He says that which is productive out of the eternal hot and cold was separated at the genesis of this kosmos.¹⁵ He says then that that which is generative (τὸ γόνιμον) separated off at the creation of this world from eternal hot and cold.¹⁶

¹⁰McKirahan (2010, 36). Similarly Wöhrle in TP2 Ar101: “Er sagt, bei der Entstehung dieser unserer Welt hätte sich aus dem Ewigen das, was Wärme und Kälte erzeugt, abgesondert”. See, however, Wöhrle’s alternative translation, discussed below.

¹¹Finkelberg (1993, 246).

¹²Graham (2006, 7).

¹³Heidel (1912, 229); cf. DK 67A1(31) = Gr Lcp47 (The Mss have τῆς).

¹⁴Naddaf (2005, 72); cf. Conche (1991, 138).

¹⁵Gregory (2007, 31) (our italics).

¹⁶Kočandrle (2011a, 90) (our translation from the Czech and our italics).

This would imply that the generative power separated off from the opposites hot and cold. In Kočandrle's translation, hot and cold are either identical with or part of the boundless. Contrary to all others, Gregory's translation suggests that there is no reference to 'the boundless' in this passage. The words θερμοῦ τε καὶ ψυχροῦ, however, seem most naturally to belong to τὸ γόνιμον and not to τὸ ἀίδιον. Moreover, if Anaximander's principle is interpreted as the eternal, boundless power of nature, as in this book, it is not logical to introduce other eternal entities like warm and cold.

Yet another reading is offered by KRS and Wöhrle, who revive Heidel's¹⁷ suggestion that the words ἐκ τοῦ αἰδίου can be translated as 'eternal', 'forever', or 'from all time'. They suggest:

That which was capable *from all time* of producing hot and cold.¹⁸

Was von Ewigkeit her Wärme und Kälte erzeugt.¹⁹

In these translations, ἐκ τοῦ αἰδίου, which we could render as something like 'since days of old', is a kind of echo of ἐξ ἀπείρου αἰῶνος ('from an infinite time past'), a few lines earlier. This would (again) imply that there is no mention of 'the boundless' in this passage. The counter-argument in KRS²⁰ that we then should expect ἐξ αἰδίου without the article²¹ (cf. ἐκ παιδός, *from* boyhood) is not one we regard as decisive (cf. ἐκ τοῦ ἀρίστου, 'after breakfast').²²

As regards the term τὸ γόνιμον, 'that which is generative', we think that it must be understood in a quasi-biological way. This quasi-biological reading is supported by the term ἀποκριθῆναι, which may mean 'to ejaculate', 'to secrete', as in Naddaf's translation, or, as Baldry puts it: "the 'separating off' of the seed".²³ Conche points out that in the embryological sections of the *Corpus Hippocraticum*, the word ἀποκριθῆναι is used for the secretion of sperm.²⁴ This suggests an interpretation of Pseudo-Plutarch's text in the sense of a discourse of biological generation. When read like this, the biological images used by Anaximander (procreation, seed, the enveloping membrane or bark) form, more than the other images he used in his poetical language, the very heart of his cosmogony, which is the work of the procreative power of boundless nature.

However, although it also appears in a passage from Simplicius on Thales, where it stands as an indication of the generating quality of water (τὸ γόνιμον τοῦ

¹⁷Heidel (1912, 229, n. 2).

¹⁸KRS (2007, 132, n. 1).

¹⁹Wöhrle TP2, 85 n. 2. Wöhrle abusively connects this with Finkelberg's translation (cf. Finkelberg 1993, 246).

²⁰KRS (2007, 132, n. 1).

²¹As in Plotinus, *Enn.* 2.1.3.

²²See LSJ s.v. ἐκ II.2.

²³Baldry (1932, 29).

²⁴Conche (1991, 142).

ὑδατος),²⁵ the authenticity of the expression τὸ γόνιμον is disputable, especially given its rare use prior to Aristotle. Moreover, until Aristotle, the word was always used as an adjective, meaning ‘fertile’, ‘productive’, also in a metaphorical sense. Aristotle uses it to indicate a fertile as opposed to an infertile seed, or elsewhere to denote a fertile egg as opposed to a wind-egg.²⁶ A little earlier, Plato uses the word metaphorically to discern between a sound idea as opposed to a vain idea.²⁷ In the fifth century BC, the word γόνιμος appears in Euripides’ *Electra*, when Orestes, after having killed his mother, rues “the legs between which I was born” (γόνιμα μέλα),²⁸ and in Aristophanes’ comedy *The Frogs*, where it refers to a “fruitful poet”.²⁹ At one point, Theophrastus calls the heat of the Sun “the generative heat in animals and plants” (ἡ γόνιμος ἐν τοῖς ζώοις καὶ φυτοῖς θερμότης).³⁰

The word γόνιμος obviously has to do with procreation and fertility. According to Diels, γόνιμον, as used in the doxography on Anaximander, may come from Theophrastus.³¹ We should not exclude the possibility that Anaximander himself used another similar word, such as ‘seed’ (σπέρμα), as in Anaxagoras,³² ‘root’ (ρίζωμα),³³ as in Empedocles,³⁴ or even ‘egg’ (ὄον), as in a report by Olympiodorus, which most likely is not about Thales, as Berthelot believes, but about Anaximander, as Eisler rightly remarks:³⁵

(...) μίαν (...) ἄπειρον ἀρχὴν πάντων τῶν ὄντων ἐδόξασε <δ> Μιλησίος τὸ ὄον.³⁶

the Milesian was of the opinion that there is one boundless principle of all things, which is the egg.

The cosmic egg, begotten by Night or by one or more Titans, is also a popular motif in Orphic cosmogonies.³⁷ The most probable candidate, however, for Anaximander’s authentic expression, as Eisler again rightly remarks,³⁸ is the word

²⁵Simplicius, *In Arist. Phys.* 9.40.23 = TP1 Th411, not in DK and Gr.

²⁶Aristotle, *Hist. animal.* 523a25; *De gener. animal.* 730a6.

²⁷Plato, *Tht.* 151e.

²⁸Euripides, *Electra* 1209.

²⁹Aristophanes, *Ranae* 96, 98.

³⁰Theophrastus *De igne* 5.3; quoted from Van Raalte (2010, 60).

³¹Cf. DK I, 83n.

³²Anaxagoras, DK 59B4 = Gr Axx13.

³³Cf. Conche (1991), Heidel (1913, 686), Kahn (1994, 57), KRS (2007, 131–132), Lebedev (1978, II, 46).

³⁴Empedocles, DK 31B6 = Gr Emp26.

³⁵Eisler (1910, 524, n).

³⁶Olympiodorus, *De arte sacra* 19; quoted from Berthelot (1887f, I.2, 81); the orthography is Berthelot’s, the translation ours.

³⁷See KRS (2007, 26–29).

³⁸Eisler (1910, 669): “Für den Ausdruck ‘τὸ γόνιμον’ der theophrastischen Doxographie ist hier mit grösster Wahrscheinlichkeit der (...) bei Pherecydes gesicherte Ausdruck γόνος (...) in der Urschrift vorauszusetzen.” Of course, this is not because of Eisler’s ‘isopsephism’ (symbolism of numbers).

γόνοϋς, ‘seed’ or ‘offspring’, which appears in a passage from Anaximander’s contemporary, Pherecydes:

Pherecydes of Syros said that Zas always existed, and Chronos and Chthonie, as the three first principles... and Chronos made out of his own seed (ἐκ τοῦ γόνου ἑαυτοῦ) fire and wind [or breath] and water... from which, when they were disposed in five recesses, were composed numerous other offspring of gods.³⁹

This passage seems to echo Hesiod’s description of the birth of the Erinyes, the Giants, and Meliae, the ash tree nymphs, from the blood of Ouranos’ phallus, which is cut off by Kronos. It also evokes the birth of Aphrodite, in connection with which, he says, “(...) a white foam rose up around them from the immortal flesh.”⁴⁰ According to Pherecydes, Chronos creates from his own seed, fire, wind and water. What could be of interest here are parallels with Anaximander’s cosmogony. It is remarkable that the seed, γόνοϋς, had already been mentioned. These early texts, and particularly the mention of the seed, γόνοϋς, show remarkable parallels with Anaximander’s cosmogony.

Perhaps the original meaning of τὸ γόνιμον is preserved in Irenaeus:

Anaximander has set as the origin of everything that which is immeasurable (hoc quod immensum est) which *in the way of seed* bears within itself the genesis of all things (*seminaliter* habens in semetipso omnium genesin).⁴¹

Given these considerations, we propose a translation of Pseudo-Plutarch’s text, which reads as follows:

He says that at the coming to be of this cosmos that which since days of old is generative of hot and cold was secreted.

In other words, that which is first generated by boundless nature is itself also generative (of hot and cold) and thus starts the coming to be of the world in an ongoing process of generation. We may conclude that at least at the beginning of the cosmogony, the way boundless nature works is described in biological terms, much like the spending of seed or the offspring of an egg. We must keep in mind, however, that everything that is created in this process is destroyed in due time, as stated in Anaximander’s fragment B1: “as is the order of things” (κατὰ τὸ χρεών) and “in conformity with the ordinance of time” (κατὰ τὴν τοῦ χρόνου τάξιν), or in other words, “such is the course of life”. The aspect of decay will be paid more attention to in the last two chapters.

The motif of seed is closely connected with that of water. Porphyry mentions people who hold that Plato’s river Ameles (the ‘careless’ river),⁴² Hesiod’s and the Orphics’ Styx and Pherecydes’ ἐκπόρῃ (‘outflow’) are all synonyms for seed

³⁹Damascius, *De princ.* 124bis = DK 7A8, translation KRS.

⁴⁰Hesiod, *Theog.* 190–191; translation is taken from Most 2006.

⁴¹Irenaeus, *Adv. haer.* II.14.2 = Dox 171 = TP2 Ar52, not in Gr, our translation and italics.

⁴²Plato, *Resp.* 621a.

(σπέρμα).⁴³ The same motif of seed, as well as streaming, or spilling, is manifest in a passage from Achilles Tatius, who states that Pherecydes, like Thales, believed water to be the source (ἀρχή) of everything, which is obviously meant as primordial moisture, since he also calls it χάος.⁴⁴ In this context, KRS point to a dubious etymology that derives χάος from χέεσθαι, ‘spilling’ or ‘streaming’.⁴⁵ Aristotle also claims that water, the primordial moisture, is Thales’ ἀρχή. He elucidates this assertion by stating that everything takes its nourishment from moisture, which generates heat, as well as by the observation that seed has a moist nature.⁴⁶ Similar motifs of water as the source of life are found in Simplicius, who also refers to the moisture of seeds:

Of those who say the principle of all things is one and in motion, whom [Aristotle] properly calls natural philosophers, some say it is limited in number, such as Thales son of Examyus, of Miletus, and Hippo (who is said to have been an atheist). They said the principle was water, being led to this view by considering what appears to the senses. For in fact the hot lives off the moist and dead bodies dry out and the seeds of all things are moist and every kind of nourishment is juicy. And things are naturally nourished by the very thing they are composed of. And water is the source of the moist nature and holds all things together. That is why they understood it to be a source of all things and they asserted that the Earth rests on water.⁴⁷

In connection with Thales, Aetius points to the cosmological role of moisture, noting that both the fire of the Sun and of the heavenly bodies are nourished by water vapors.⁴⁸ Aristotle takes Thales to be the first clear representative of an old tradition. Obviously, Aristotle’s intention is to demonstrate the extent to which a connection between life and moisture is traditional. After all, Homer claims that through the sea and the rivers, Okeanos nourishes them all, and that it is ‘Oceanus from whom they all are sprung’.⁴⁹ In effect, Okeanos is thus the parent of all. It is interesting to note that the Greeks often connect life with moisture and death with dryness. In this way, the dead are called ἀλίβαντες,⁵⁰ meaning ‘without moisture’. Similarly, Athena, when she transforms Odysseus into an old man, warns that she will dry his smooth skin.⁵¹ References to the moisture of seeds in such passages are not surprising because they belong to one of the oldest interpretations. Anaximander also assigns an important role to primordial moisture, πρώτη ὕγρασία, the remnant of which is the sea.⁵² Similarly, out of moisture rise the first

⁴³Pseudo-Galen (Porphyry), *Ad Gaur.* 34.26 = DK 7B7.

⁴⁴Achilles Tatius, *Isagoge* 3.28 = DK 7B1a.

⁴⁵Achilles Tatius, *Isagoge* 3.31. Cf. KRS (2007, 60, n.1); see also Lebedev (1978, II, 49–50).

⁴⁶Aristotle, *Met.* 983b20 = DK 11A12 = Gr Ths15 = TP1 Th29.

⁴⁷Simplicius, *In Arist. Phys.* 9.23.21 = DK 11A13 = Gr Ths17 = TP1 Th409.

⁴⁸Aetius, *Plac.* I.3.1 = *Dox.* 1879, 276 = Gr Ths16 = TP1 Th147.

⁴⁹Homer, *Il.* XXI, 196 and XIV, 246; translation Murray.

⁵⁰Plato, *Resp.* 387c.

⁵¹Homer, *Od.* XIII, 398.

⁵²Aetius, *Plac.* III.16.1 = DK 12A27 = Gr Axr36 = TP2 Ar66; Alexander of Aphrodisias, *In Arist. Meteor.* 67.3–11 = DK 12A27; Aristotle, *Meteor.* II.1.353b6 = DK 12A27.

living beings.⁵³ If we take it that Anaximander's term was γόνος, which can be translated as 'offspring', 'seed' or 'embryo', it stands in close relation to moisture.

Immediately after the part quoted above, Pseudo-Plutarch describes the next step in the coming to be of the world:

(...) and from this a sort of sphere of flame grew around the air about the Earth like bark (φλοιός) around a tree.⁵⁴

The image of the bark around the tree at first sight is just borrowed from the kingdom of plants. When we take into account, however, that the term φλοιός can also be used to refer to a membrane enveloping the egg,⁵⁵ and that in the doxography on Anaximander it is used to describe the thorny bark of the first animals,⁵⁶ Anaximander may have been making a comparison between the 'bark' of the world and a membrane, an amniotic or embryo sac formed around eggs or more generally around the embryos of animals or plants.⁵⁷ Therefore, we could interpret φλοιός as referring to membranes which form around a developing organism, be it an animal or a plant, or even the world.

The images of seed, moisture and bark take us back to φύσις, the word that is repeatedly used to describe Anaximander's principle. And though it appears in a different context and is used at a later stage, it may imply that Anaximander's conception should be understood as written in biologizing terms. After all, the world around us is alive. A boundless vital force, φύσις ἄπειρος, could be, in this sense, associated with a natural force responsible for all creation and growth, which, being all-embracing, would also have divine connotations.

However, although Pherecydian or Orphic cosmogonical and cosmological images and narratives (which reflect ancient myths) might have influenced Anaximander, in his thinking the image of procreation plays a completely different role. This is because it is not part of a theogony, but of the first cosmology in natural terms we know of. Certainly, Anaximander uses 'poetic' language with images from several fields: from the juridical sphere in his description of the relation between τὰ ὄντα; from chariot-making when he compares the (course of the) celestial bodies with wheels; from biology in describing how, in the early state of the cosmos, a germ is separated off and how a sphere of fire grows around the vapor that surrounds the Earth like the bark of a tree; and from the field of meteorology in comparing the light of the celestial bodies with lightning bolts.⁵⁸ But this is entirely different from a description of cosmogonical phenomena in mythical terms; of a

⁵³Aetius, *Plac.* V.19.4 = DK 12A30 = Gr Axr37 = TP2 Ar67; Censorinus, *De die nat.* 4,7 = DK 12A30 = Gr Axr38 = TP2 Ar90; Hippolytus, *Ref.* I.6.6 = DK 12A11 = Gr Axr20 = TP2 Ar75.

⁵⁴Pseudo-Plutarch, *Strom.* 2 = DK 12A10 = Gr Axr19 = TP2 Ar121.

⁵⁵Aristotle, *Hist. animal.* 558a28.

⁵⁶Aetius, *Plac.* 5.19.4 = DK 12A30 = Gr Axr37 = TP2 Ar67.

⁵⁷Cf. Baldry (1932, 29–30), Kahn (1994, 86–87), Lloyd (1966, 309–312), Naddaf (2005, 72–73).

⁵⁸Usually this image is translated as "the nozzle of a bellows". However, see Couprie (2001, 2011, Chap. 11).

masturbating god or a theomachy with struggling giants and phallus-eating gods. Pherecydes and the Orphics on the one hand and Anaximander on the other live in different conceptual worlds and express themselves in a completely other universe of discourse: Anaximander uses similes and images in an attempt to explain how the world is generated and is constituted physically, whereas Pherecydes tells stories about mythological figures in a theogony. Aristotle characterizes Pherecydes as θεολόγος, albeit of an intermediate sort, while he definitely sees Anaximander as a φυσιολόγος. We cannot but agree with Gregory, who reflects on the origin of Greek cosmogony: “There is a great temptation, when confronted with the proposal that a society originated something, to argue that societies preceding them surely have this too. At some point we have to resist this regression”, and: “If there is innovation and progress, then there must be ideas without precedents”.⁵⁹

⁵⁹Gregory (2007, 25 and 24).

Chapter 7

Generation

One of the few occasions Aristotle mentions Anaximander by name appears in a passage from *Physics*. Here he contrasts Anaximander's rendition of the process of generation with that of those who explain generation by condensation and rarefaction of the one underlying body. Anaximander, on the contrary, is grouped together with Empedocles and Anaxagoras, because they "separate out (ἐκκρίνεσθαι) the contraries (τὰς ἐναντιότητας) from the one in which they are present (ἐκ τοῦ ἐνὸς ἐνούσας)".¹ Simplicius also explicitly mentions Anaximander's explanation of generation through the separation of opposites at the end of his report and, as we have seen, it features in other quoted texts as well.

Aristotle distinguishes the two groups in terms of elements and opposites (or contraries). We should keep in mind that the notion of qualities and the number of opposites in the theory of elements was established later, when Aristotle defined each of the four elements as combinations of the opposite pairs, hot-cold and dry-moist, whereby these pairs also determined the number of elements. This means that we must be very suspicious about any interpretation of Anaximander in terms of opposites, lest we run the risk of understanding him in Aristotelian terms.

Let us look more closely at the alleged role of opposites in Anaximander's thought and in his account of the cosmos as such. Simplicius has the following to say on Aristotle's text:

(...) for the contraries, being present in the substratum, are separated out (ἐκκρίνεσθαι), says Anaximander (...). His contraries are hot, cold, dry, moist, and the rest.²

When Simplicius includes in his list not only the two usual pairs of opposites but also 'the rest', he distracts from Aristotle's text as though he thinks that Anaximander does not fit the Aristotelian model. According to Simplicius,

¹Aristotle, *Phys.* 187a12–23 = DK 12A16 and A9 (partially) = Gr Axx13 = TP2 Ar1. Translation slightly adapted.

²Simplicius, *In Arist. Phys.* 150.22–24 = DK 12A9 = Gr Axx14 (only the last sentence) = TP2 Ar169.

Anaximander did not have the limited pairs of opposites that Aristotle has in mind, but many of them. We may wonder if this does not bring us even further from Anaximander's original intentions. Neither Aristotle nor Simplicius mentions a specific example of this separating out of opposites. This is the more striking as Simplicius, immediately after his discussion of the fragment contrasting Anaximander with Anaximenes, mentions several concrete instances of generation in Anaximenes, according to whom generation does not take place through separation but by means of condensation and rarefaction:

When it (sc. air) is thinned it becomes fire, while when it is condensed it becomes wind, then cloud, when still more condensed, water, then earth, then stones. Everything else comes from these.³

Simplicius repeats his interpretation just after his rendition of Anaximander's fragment (DK 12B1), here using the verb ἀποκρίνεσθαι instead of ἐκκρίνεσθαι to describe the process of generation, and he also ends with coupling Anaximander and Anaxagoras:

And he did not derive generation from the alternation of some element, but from the separation of contraries due to everlasting motion (ἀποκρινομένων τῶν ἐναντίων διὰ τῆς αἰδίου κινήσεως). That is why Aristotle classified him with the followers of Anaxagoras.⁴

When we look into the doxography we can find only one explicit pair of opposites, hot and cold, that is said to play a role in Anaximander's cosmogony. Pseudo-Plutarch, in a text that, according to Diels, comes from Theophrastus,⁵ after having stated in general that from τὸ ἄπειρον "the heavens are separated (ἀποκεκρίσθαι) and generally all the world-orders, which are countless", says in words that are commonly thought to reflect Anaximander's manner of speech, which we have already partially discussed in the previous chapter:

He says that at the coming to be of this cosmos that which since days of old is generative (τὸ ἐκ τοῦ αἰδίου γόνιμον) of hot and cold was secreted (ἀποκριθῆναι) and from this (ἐκ τούτου) a sort of sphere of flame grew around the air about the Earth like bark around a tree. This (sc. sphere of flame) subsequently broke off and was closed into individual circles to form the Sun, the Moon, and the stars.⁶

Stobaeus also refers to the same pair, apparently in relation to the actual situation of the heavens, and according to Kahn probably also as an echo of Theophrastus⁷:

[Anaximander said that the heavens] consist of a mixture of hot and cold.⁸

³Simplicius, *In Arist. Phys.* 24.26–25.1 = DK 13A5 = Gr Axs3 = TP Axr163 and As133.

⁴Simplicius, *In Arist. Phys.* 24.13 = DK 12A9 = Gr Axr9 = TP2 Ar163.

⁵See DK at 12A10.

⁶Eusebius, *Praep. evan.* 1.8.2 (quoting Pseudo-Plutarch, *Stromateis* 2) = DK 12A10 = Gr Axr19 = TP2 Ar101.

⁷See Kahn (1994, 57).

⁸Stobaeus, *Anthol.* 1.23.1 (= Aetius, *Plac.* II.11.5) = DK 12A17a = TP2 Ar147, not in Gr.

Whereas Aristotle, mentioning Anaximander explicitly, speaks of opposites in general and Simplicius apparently takes it that Anaximander's cosmogony enumerates many—hot, cold, dry, moist, and the rest—Pseudo-Plutarch mentions only two: hot and cold (θερμός and ψυχρός). Moreover, the opposites hot and cold were not present from the beginning as they should have been according to Aristotle. Rather, the emphasis is on their being secreted from τὸ γόνιμον. As regards the insertion of the opposites hot and cold, his text, just like that of Stobaeus, looks like a—not very successful—reformulation of Anaximander's theory in terms of Aristotelian opposites. We agree with Lloyd's remarks: "(...) Aristotle and the doxographers do sometimes reformulate Presocratic theories in terms of the opposites (...), and the reference to hot and cold in the phrase quoted in the *Stromateis* seems simply to anticipate the fuller and more precise description that follows".⁹

However, we would rather formulate: "the phrase quoted in the *Stromateis* seems simply *meant to anticipate* the fuller and more precise description that follows". The reference to the opposites hot and cold appears to be an incorrect one. 'Hot' and 'cold', as two extremes of temperature, are but two late terms for what originally were concrete entities like flame and air. The most striking feature, however, is that the two opposites hot and cold are followed by a triad: flame, air, and earth. Only the 'sphere of flame' is said to be generated by the γόνιμον, whereas the air around the Earth and the Earth itself seem to be conceived as, somehow, already present. When and how they are generated remains unclear. Hölscher observes: "the section does not offer a complete cosmogony, but deals only with the arrangement of the sky. The origin of Earth, Sea, and Air is not described".¹⁰ If this is right, there is no talk of opposites in this text on the origin of the cosmos, but only of the generation of the heavens, or more precisely, of the celestial fire around the already existing air and Earth. This interpretation is supported by the last lines of Pseudo-Plutarch's account, which are about the origin of the celestial bodies as remnants of the sphere of flame.

So it seems that Aristotle's interpretation in terms of elements and opposites has had a devastating influence upon the understanding of Anaximander's cosmogony. Speculation is all that remains after Kahn's erudite digression of almost fifty pages on 'Elements and Opposites': "We cannot pretend to say just how many primary powers or portions were generated by Anaximander out of the ἄπειρον. Not only hot and cold, but the other major pairs of opposites must also have figured among them (...)".¹¹ It is not clear on what evidence the word 'must' is based. For instance, as far as we can judge from the doxography, one obvious set of opposites,

⁹Lloyd (1970, 265).

¹⁰Hölscher (1970, 291).

¹¹Kahn (1994, 163).

light and darkness, which we think might play a role in Anaximander's cosmogony, appears to be absent. As far as we can see from our analysis of the texts thus far, the conclusion must be that the issue of opposites as generating forces in Anaximander's cosmogony goes back to Aristotle, who tried to force Anaximander's cosmology into the straight-jacket of his own physical theories. The remaining texts in the doxography suggest that instead of hot and cold, it is more likely that Anaximander spoke of some more concrete entities, such as the fire of the fiery sphere and the air around the Earth. However, in any interpretation of opposites, the biologizing model which we proposed, is not compromised.

In Anaximander's conception, it is not so much the oppositional character of the cosmic entities that counts, but their cooperation, their creative working together. In the most explicit instance, when the mutual relation of flame and air (and the Earth) is compared with the bark around a tree, the image evokes something more like protection or shelter than rivalry or antagonism. A similar relation appears to hold for the actual celestial bodies, in which, somehow, the celestial fire and the air have reached an arrangement that is the reverse of their original relation. In the beginning, the sphere of flame surrounds the air, but as soon as the heavenly bodies are generated, the air, in a condensed form, surrounds the celestial fire.

We believe that Heraclitus followed in the footsteps of Anaximander and his Ionian neighbours in general in many ways. This hypothesis could be supported by an unusual type of argument, namely Heraclitus' silence about the Milesians. Usually, the Ephesian did not hold back in sharply criticizing other thinkers, regardless of whether they be of times long gone, representing a respected tradition, or his contemporaries, whom he attacked with a more personal flavour. But about the Milesians he kept silent. It could be argued that Heraclitus developed Anaximander's ideas on the cooperation and conflict between cosmic entities into an overall theory of conflicting opposites which nevertheless form a higher unity:

God is day night, winter summer, war peace, satiety hunger (all the contraries, and this is mind), and he alters just as <fire, which,> when it is mixed with spices, is named according to the aroma of each of them.¹²

As the same thing in us are living and dead, waking and sleeping, young and old. For these things having changed around are those, and those in turn having changed around are these.¹³

According to Heraclitus, the opposites are, by their very nature, in conflict with each other. They generate tension between heat, leading to extension, thinning, and drying out on one side, and on the other, swaying back to cold, leading to contraction, thickening, and moisture. Day conquers night and darkness gives way to light, until night and darkness set in once more. The mutual strife of these and other

¹²Hippolytus, *Ref.* IX.10.8 = DK 22B67 = Gr Hct148.

¹³Plutarch, *Cons. ad Apoll.* 10.106e = DK 22B88 = Gr Hct84.

opposites shapes the universe, of which they are the embodiment. Nevertheless, apparently contrary things are one. One replaces the other as a stage in a process, two sides of the same coin: Nothing is as different as day and night and yet even they are one and the same.¹⁴ Each individual thing contains internal contradictions in its constitution,¹⁵ but behind the apparent variety one can catch a glimpse of unity, a union of opposites, an invisible structure ‘greater than the visible’.¹⁶ Aristotle recapitulates the different aspects of this kind of oppositional thinking in one clause:

Heraclitus says what is opposite agrees, and from differing things comes the fairest harmony, and all things happen according to strife.¹⁷

But let us return to Anaximander. The quoted texts in which it is said that Anaximander explained generation as the process of the separation of opposites are especially interesting because they set him apart from other Milesians. Moreover, Aristotle’s words suggest to us that he interprets Anaximander in a mechanistic way (using the word ἐκκρίνεσθαι), the opposites being already present in ‘the one’ as a kind of Anaxagorean mixture, out of which they are separated.

However, when we return to Pseudo-Plutarch’s text, reading it without becoming biased by Aristotelian conceptions of elements and opposites, the atmosphere is not mechanistic, as in Aristotle, but rather biologizing. It is interesting to observe that Pseudo-Plutarch uses the word ἀποκρίνεσθαι instead of Aristotle’s ἐκκρίνεσθαι. Hippolytus, too, uses ἀποκρίνεσθαι and this time not in relation to the opposites, but to a somewhat later phase of the cosmogony in which he describes the origin of Anaximander’s celestial wheels:

The heavenly bodies (τὰ ἄστρα) came to be as circles of fire, separated from (ἀποκριθέντα) the cosmic fire (...).¹⁸

And of a still later phase he writes:

Winds come from the finest vapors of air (τῶν λεπτοτάτων ἀτμῶν τοῦ ἀέρος) which are separated off (ἀποκρινομένων).¹⁹

This is the usual rendition of the text, in which it is not clear from what these winds are separated. Wöhrle, however, reads <ἐκ> τοῦ ἀέρος and translates: “Die Winde entstünden, wenn sich die ganz feinen Ausdünstungen aus der Luft ausschieden”. Even if this emendation of the text is not right, it most probably expresses its intention, as becomes clear from another account:

¹⁴Hippolytus, *Ref.* IX.10.2 = DK 22B57 = Gr Hct19.

¹⁵Hippolytus, *Ref.* IX.10.5 = DK 22B61 = Gr Hct79.

¹⁶Hippolytus, *Ref.* IX.9.5 = DK 22B54 = Gr Hct74.

¹⁷Aristotle, *Eth. Nic.* 1155b4–6 = DK 22B8 = Gr Hct71.

¹⁸Hippolytus, *Ref.* 1.6.4 = DK 12A11 = Gr Axr20 = TP2 Ar75.

¹⁹Hippolytus, *Ref.* 1.6.7 = DK 12A11 = Gr Axr20 = TP2 Ar75.

Anaximander [says] wind is a current of air when the most fine and moist parts of it are moved or dissolved by the Sun.²⁰

The role of the Sun will be discussed below, but it is noticeable that these texts show that the process of generation by means of separation apparently does not need contrarities but similar entities: the same is separated from the same; fire from fire in the first quotation, air from air in the second.

It has been argued that the word ἀποκρίνεσθαι goes back to Theophrastus and renders Anaximander's intentions best, whereas ἐκκρίνεσθαι is Aristotle's distortion.²¹ This might be right, but in our opinion it is not so much the subtle differences between the verbs ἀποκρίνεσθαι and ἐκκρίνεσθαι that are decisive. Simplicius uses both verbs in the above-quoted texts in the same context.²² Anaxagoras uses ἀποκρίνεσθαι in a cosmological context where one might expect ἐκκρίνεσθαι,²³ and both verbs can be used of the embryo or of animal secretion.²⁴ It is rather Aristotle's mechanistic interpretation that is confusing. Characteristically, when Aristotle speaks about Anaximander's rendition of the process of creation, he does not mention τὸ γόνιμον. At the end of the above-quoted text, Pseudo-Plutarch writes about the next stage of the cosmogony:

This (sc. sphere of flame) subsequently broke off (ἀπορραγείσης) and was closed into individual circles to form the Sun, the Moon, and the stars.²⁵

We have already seen that in the same context Hippolytus used a form of the verb ἀποκρίνεσθαι instead of Pseudo-Plutarch's more mechanical sounding ἀπορρήγνυμι. But even here, in the description of the creation of the heavenly bodies, this form of the verb term ἀπορρήγνυμι, which means 'to break off', can be read as an analogy of the separation of an offspring from the body of a parent. Generally speaking, if we understand the various expressions of separation as 'expulsion', Anaximander's cosmology then becomes worded in a quasi-biological terminology.

Simplicius renders Pseudo-Plutarch's ἐκ τοῦ αἰδίου, which we discussed in the previous chapter, as διὰ τῆς αἰδίου κινήσεως. Similarly, in Hippolytus:

(Anaximander has said that) motion is everlasting (κίνησιν αἰδίου εἶναι), as a result of which the heavens come to be.²⁶

²⁰Aetius, *Plac.* 3.7.1 = DK 12A24 = Gr Axr32 = TP2 Ar64. See also Pseudo-Galen, *De hist. phil.* 79.1–2 = TP2 Ar228 (not in DK and Gr), who reads λύσις (releasing) instead of ρύσις (current).

²¹See KRS (2007, 129–130).

²²Simplicius, *In Arist. Phys.* 150.22–24 = DK 12A9 = Gr Axr14 (partially) = TP2 Ar169 and Simplicius, *In Arist. Phys.* 24.13 = DK 12A9 = Gr Axr9 = TP2 Ar163.

²³DK 59B2 = Gr Axx11.

²⁴See LSJ s.v. ἀποκρίνω A2 and ἐκκρίνω A4.

²⁵Pseudo-Plutarch, *Strom.* 2 = DK 12A10 = Gr Axr19 = TP2 Ar101.

²⁶Hippolytus, *Ref.* 1.6.2 = DK 12A11 = Gr Axr10 = TP2 Ar75.

This tends to shift the meaning again towards a mechanical interpretation, especially when it is explained as referring to a vortex. But there is no need to read these texts as hinting at a heavenly vortex, the more so because there is no evidence of a vortex in Anaximander.²⁷ Although KRS leave open the possibility that the idea of a vortex plays a role in Anaximander's thought,²⁸ we note that they also say "the Indefinite (we would say: boundless nature) was divine, and naturally possessed the power to move what and where it willed".²⁹ 'Everlasting motion' is a specific Peripatetic notion. Whether it reflects an ancient concept or just results from a misunderstanding of Pseudo-Plutarch's words ἐκ τοῦ ἀιδίου, in our interpretation the expression 'everlasting motion', when used in relation to Anaximander, represents the spontaneity of boundless nature.

In agreement with our analyses in the previous chapter, we maintain that Anaximander's cosmogony is best understood from a biological perspective. Seen from a biological perspective, Anaximander argues that out of the power of boundless nature, a fertile seed, which subsequently evolves and undergoes differentiation into parts and shapes, is expelled over infinite time. In other words, a primordial separation occurs, which may be associated with the secretion or expulsion of a fertile seed by an activity of the power of boundless nature. This does not mean that we have to presuppose a parent or creator somewhere beyond the phenomenal world, from whom the seed has been expelled. The expulsion of a fertile seed can be seen here as the proper articulation of the first ever birth. We may paraphrase accordingly: "in the very beginning there has been expelled a fertile seed (...)". This fertile seed is the very first real proof of boundless nature. In fact the separation itself, as an 'expulsion', can be simply understood as a spontaneous expression of boundless nature's power, and thus as an appropriate description of birth and growth. Eternal motion can then be explained as the ongoing manifestation of boundless nature's spontaneity.

The fertile seed further evolves until it forms a fiery sphere, enveloping the air and the Earth, which subsequently breaks off. Then the heavenly bodies appear. Hence, in the text of Pseudo-Plutarch, we can see several stages of separation. Initially, a separation occurs through the expulsion of a fertile seed, which can be understood as the primeval spontaneous expression of boundless nature's power, like a first birth. When this seed matures, its parts separate into other concrete forms. Each further step in the differentiation of the phenomenal world is a

²⁷Although the surviving texts are silent on the mechanism of the motions of celestial bodies, one could suppose that the entire kinematics of the universe was based on the effect of the air and interactions between moisture on the Earth's surface and the heat of the Sun. Although we prefer a biologizing explanation of crucial areas of Anaximander's cosmogony, it is obvious that he uses, especially in his cosmology, also images from other domains (e.g. the wheel, the column drum).

²⁸KRS (2007, 128): "It is, nevertheless, just possible that what was separated off from the Indefinite in the first stage of Anaximander's cosmogony was a vortex."

²⁹KRS (2007, 128).

continuation of original separation, which is maintained and constantly established in the coming to be of the Earth and the seas, of particular meteorological phenomena, and even of living beings. This kind of separation does not mean separation from a putative mixture as seems to be indicated in Aristotle and in the doxography. Rather, it refers to separation of one stuff from the same, or another, stuff. Concrete entities like flame and air constitute the world as a whole, as an expression of the generative power of nature, which manifests itself in all its differentiations and mutual relations. From a biological view, this is a description of boundless nature which causes birth, growth, and differentiation everywhere.³⁰

The first stages of Anaximander's cosmogony in terms of separation can be understood against the background of other documented ancient descriptions of the world's origins. In the cosmogonies of various cultures, a separation of Heaven and Earth commonly takes place, such as in the Babylonian epos *Enuma Elish*. A similar separation mechanism of the primordial waters is also described in the book of *Genesis*.³¹ In the Greek world, a similar image crops up in the writings of Diodorus³²:

For by the original composition of the universe sky and earth had one form, their natures being mingled; after this their bodies parted from each other, and the world took on the whole arrangement that we see in it...³³

In Pseudo-Plutarch's above quoted text, the heavenly bodies originate from fire relics of the sphere of flame, which are "closed into individual circles to form the Sun, the Moon, and the stars."³⁴ The imagining of the heavenly bodies as circles or rings of fire completely surrounded by the air (in the form of mist) is supported by Hippolytus among others:

The heavenly bodies came to be as circles of fire, separated from (ἀποκριθέντα) the cosmic fire, surrounded by air. There are certain airy passages for breathing holes, through which the heavenly bodies appear.³⁵

Although the heavenly bodies are full circles of fire surrounded by condensed—or literally 'felt'—air, what we see in the sky are only holes into that misty cover, through which the fire inside of these circles appears:

Anaximander [says the Sun] is a circle (...) similar to a chariot wheel, having its fellow (ἄψις) full of fire, in one part emitting its fire through an opening as through a jet of fire.³⁶

³⁰Kratochvíl (2010, 252–254).

³¹*Genesis* 1.6–8.

³²Cornford (1952, 194–195) and KRS (2007, 34–44).

³³Diodorus, *Bibl. hist.* I.7.1 = DK 68B5.1; translation KRS.

³⁴Pseudo-Plutarch, *Strom.* 2 = DK 12A10 = Gr Axx19 = TP2 Ar101.

³⁵Hippolytus, *Ref.* 1.6.4 = DK 12A11 = Gr Axx20 = TP2 Ar75. Reading τόπους τινὰς ἀερώδεις with the mss., instead of Diels' emendation πόρους τινὰς ἀλλώδεις.

³⁶Aetius, *Plac.* 2.20.1 = DK 12A21 = Gr Axx22 = TP2 Ar57. Translation slightly adapted.

Anaximander [says the Moon] is a circle of fire (...) like a chariot <wheel> having a hollow fellow full of fire (...) having a single vent like a jet of fire.³⁷

But I tell you the stars are fiery and air surrounds them.³⁸

We have already noted that this arrangement is the reverse of the original relation between fire and air. However this change of roles may have originated, the doxography unmistakably describes a kind of cooperation between fire and air. Together they constitute the wheels of the Sun and the Moon, and presumably those of the other celestial bodies as well. Day by day, year by year, this combination of air and fire remains the same, without one damaging the other. The fire of the Sun grows no colder because of the surrounding air, nor does the surrounding air become warmer because of the fire inside. This conception of the behavior of the cosmic entities is completely different from that of the opposites found in Aristotle, according to whom:

One of the contrarities is the privation (στέρησις) of the other.³⁹

And it is also different from Heraclitus' conception:

Cold things warm up, hot things cool off, wet things become dry, dry things become moist.⁴⁰

This text is just another expression of Heraclitus' idea of opposites being not absolute but relative entities, which he elsewhere describes as the identity of the way up and the way down, or the identity of the beginning and the end of a circle, or that of living and dead, awake and asleep, young and old, change and rest.⁴¹ Bröcker cannot be right when he suggests that these words must be ascribed to Anaximander and inserted into fragment DK 12B1.⁴² Anaximander's fragment, as it is usually rendered without Bröcker's insertion, does not speak of opposites. Depending on which sentences are regarded as belonging to the original text, it is either about 'existing things' (τὰ ὄντα) in reciprocal or even oppositional relationship to each other, or it is not clear what the word 'they' (αὐτά) refers to.

After a short description of the creation of the heavenly bodies, Pseudo-Plutarch's text skips immediately to the origin of man. There are obviously at least two chains missing: the creation of the Earth containing the land, the sea, and the atmosphere, and the creation of animal and plant life. The only pair of opposed cosmic entities to which seems to have been assigned a function in the

³⁷Aetius, *Plac.* 2.25.1 = DK 12A22 = Gr Axr25 = TP2 Ar60. Translation slightly adapted.

³⁸*Turba*, Sermo I.38–40 = Gr Axr29 = TP2 Ar270, not in DK.

³⁹Aristotle, *De gen. et corr.* 332a23 = Gr Axr11 = TP2 Ar12, not in DK.

⁴⁰Tzetzes, *Scholia ad Exegesis in Iliadem* II.126 = DK 22B126 = Gr Hct86; translation Graham.

⁴¹See Hippolytus, *Ref.* 9.10.4 = DK 22B60 = Gr Hct61; Porphyry, in *Iliadem* Ξ 200 = DK 22B103 = Gr Hct78; Plutarch, *Cons. ad Apoll.* 10.106e = DK 22B88 = Gr Hct84; Plotinus, *Enn.* 4.81 = DK 22b84a = Gr Hct82.

⁴²See Bröcker (1956, 382–384).

course of generation is that of the primeval moisture and the sea on the one hand and the heat of the Sun on the other. And again their relation is one of cooperation so as to facilitate the process rather than to cause controversy or strife.

It is not quite clear when and how the primeval moisture originates. We can reasonably guess that it becomes identified with, or originates from, the air that surrounds the Earth, as described in Aetius' account:

Anaximander says the sea is the remainder of the primeval moisture of which fire dried out the majority and what was left changed its character owing to the heating action.⁴³

Unmistakably, the air fulfils a crucial role. From the beginning, it surrounds the Earth (περὶ τὴν γῆν),⁴⁴ after which it shapes the heavenly bodies. Then, in the form of primeval moisture, it develops into the sea and becomes the atmosphere. When we turn to the meteorological and geological events in the existing world, the influence of the Sun can be called an indispensable benevolence as well. Aristotle in *Meteorology* describes the origin of the sea and atmosphere as follows:

The whole region about the Earth was moist at first, but being dried out by the Sun, they say the vapor produced the winds and the turnings of the Sun and Moon, while what was left became the sea. Accordingly they think the sea is diminishing as it dries out and finally some day it will be completely dry.⁴⁵

Although Aristotle does not ascribe this notion to any particular thinker, Alexander in his commentary on this passage tells us that according to Theophrastus this holds for Anaximander and Diogenes (of Apollonia):

Some of them say the sea is what is left of the primeval moisture. For the region about the Earth was first moist, and then part of the moisture was evaporated by the Sun, and there arose from it winds and the turnings of the Sun and Moon, because they made their turnings by revolving where there is an abundance of moisture for the winds, coming from these vapors and exhalations. (...) Those who held this view, as Theophrastus reports, were Anaximander and Diogenes.⁴⁶

The influence of the heat of the Sun on the primeval moisture plays an initial role in the separation of the sea and dry land. The vapors from this moisture give rise to the winds and hence becomes the origin of the whole atmosphere:

Rains [come] from the vapor (ἐκ τῆς ἀτμίδος) drawn up from the Earth under the influence of the Sun.⁴⁷

⁴³Aetius, *Plac.* 3.16.1 = DK 12A27 = Gr Axx36 = TP2 Ar66.

⁴⁴Cf. Eusebius, *Praep. evan.* 1.8.2 (quoting Pseudo-Plutarch, *Strom.* 2) = DK 12A10 = Gr Axx19 = TP2 Ar101.

⁴⁵Aristotle, *Meteor.* 353b6–11 = DK 12A27 = Gr Axx34 = TP2 Ar8.

⁴⁶Alexander, *In Aristot. Meteorolog.* 3.2, 67.3–12 = DK 12A27 = Gr Axx35 = TP2 Ar84; Also see Aetius, *Plac.* 3.16.1 = DK 12A27 = TP2 Ar66 = Gr Axx36.

⁴⁷Hippolytus, *Ref.* 1.6.7 = DK 12A11 = Gr Axx20 = TP2 Ar75, translation slightly adapted. In TP2 the words τῆς ἀτμίδος are placed between angular brackets, without any explanation.

Anaximander [says] wind is a current of air (ῥύσιν ἄερος) when the most fine and moist parts of it are moved or dissolved by the Sun.⁴⁸

Wind arises from the fine mist of air because when heat is joined (*iuncto*) with moisture, something fine goes out which must become wind.⁴⁹

The wind that results from the Sun's heating of moisture is, in turn, that which feeds the Sun and makes it move. Here, again, one cosmic entity, moisture, facilitates the other, the Sun:

(...) those who say that what is lifted up under the influence of the Sun was its nourishment (...) and that this (he means either the air or the Sun) causes the airstreams and winds and its turnings, be it those of the air or those of the heavens. Those who held this view (...) were Anaximander and Diogenes.⁵⁰

The only time the opposite pair of light and dark is used is to explain lightning. The preposition *παρά* evidently has the function of indicating the contrast between the light of lightning and the darkness of the cloud:

The rupture, contrasting against (*παρά*) the dark cloud produces the flash (of lightning).⁵¹

However, the *Turba* provides another explanation, which is more in concordance with the role of the Sun in other kinds of events, as shown above:

So also lightning: when the heat of the Sun falls on a cloud and bursts it, lightning appears.⁵²

The creative process goes on to crowd the Earth with living beings, including humans, but there is no word in the doxography about the creation of plants. The process of generation of living creatures is described as a kind of *generatio spontanea*, and even refers to men in a kind of proto-evolutionary language. The relation of the Sun's heat to primeval moisture at different stages seems to be essentially one of mutual cooperation:

⁴⁸Aetius, *Plac.* 3.7.1 = DK 12A24 = Gr Ayr32 = TP2 Ar64. See also Pseudo-Galen, *De hist. phil.* 79.1–2 = TP2 Ar228, who reads λύσις (releasing) instead of ῥύσις (current).

⁴⁹*Turba*, Sermo I.38–40 = Gr Ayr33 = TP2 Ar270, not in DK.

⁵⁰Alexander, *In Aristot. Meteorolog.* 3.2, 73.14–22 = TP2 Ar85, not in DK and Gr; our translation. Perhaps some of this process is also behind Xenophanes' conception of the celestial bodies being generated from clouds, or being incandescent clouds. Cf. Plutarch, *Strom.* 4 = DK 21A32 = Gr Xns58; Aetius, *Plac.* 2.13.14 = DK 21A38 = Gr Xns60 (referring abusively to DK 21A8); idem 2.20.3 = DK 21A40 = Gr Xns61; idem 2.25.4 = DK 21A43 = Gr Xns67; idem 3.2.11 = DK 21A44 = Gr Xns70.

⁵¹Aetius, *Plac.* 3.3 = DK 12A23 = Gr. Ayr30 = TP2 Ar63, our translation. Graham translates: "the separation against the dark cloud (produces) the flash". Wöhrle has: "der Einschnitt im Kontrast zur Dunkelheit der Wolke". Conche (1991, 200), translates: "par contraste avec la noirceur du nuage, la déchirure offre l'aspect d'une lueur éclatante".

⁵²*Turba*, Sermo I.38–40 = Gr Ayr33 = TP2 Ar270.

Anaximander said the first animals were generated in moisture surrounded by a prickly bark or shell (φλοιός), and as they matured they moved onto land and breaking out their shell they survived in a different form for a short while.⁵³

Living creatures arose <from the moist> being evaporated by the Sun. In the beginning man was similar to a different kind of animal, namely a fish.⁵⁴

The notion that man somehow originated from a kind of fish is also attested by Censorinus, who also hints at the warming influence of the Sun on the water and the land. Similarly, Plutarch considers it analogous to the behavior of a kind of shark that bears its young alive:

Anaximander of Miletus held that fishes or animals quite similar to them arose when the water and land were warmed. Inside them men were formed and kept as embryos until they reached puberty. Finally, when these animals burst, men and women emerged who were mature enough to take care of themselves.⁵⁵

For he (sc. Anaximander) declares, not that fish and men were born in the same kind of creatures, but that men were first born and nourished inside fish, as the dogfish, and when they were old enough to take care of themselves, then they emerged and took to land.⁵⁶

The image of a sheltering envelopment, which we meet during an early stage of the cosmology (the sphere of flame around the air about the Earth like the bark around a tree) and again in the constitution of the celestial bodies (condensed or ‘felted’ air covering the fire inside), returns in the origin of animals (surrounded by a prickly bark). Even the word ‘bark’ (φλοιός) is the same in both episodes. This seems to be Anaximander’s original way of describing the structure and constitution of finite living beings, heavenly bodies, and even meteorological phenomena.

After the creation of the world with all that belongs to it, the work of boundless nature does not end. It is observed in the continuing process of generation in the birth of animals and the reproduction of plants, in the growth of plants, in the breath of animals, in the moving power of stones, and even in the regular movements of the celestial bodies. That is why we use the circumscription: ‘the boundless, inexhaustible power that generates all things and makes them move and grow’. In mentioning Anaximander, Aristotle calls the power of boundless nature all-encompassing, one that steers everything:

This seems to be the source of everything else and to encompass all things and steer all things (περιέχειν ἅπαντα καὶ πάντα κυβερνᾶν).⁵⁷

⁵³Aetius, *Plac.* 5.19.4 = DK 12A30 = Gr Axx37 = TP2 Ar67.

⁵⁴Hippolytus, *Ref.* 1.6.6 = DK 12A11 = Gr Axx20 = TP2 Ar75.

⁵⁵Censorinus, *De die nat.* 4.7 = DK 12A30 = Gr Axx38 = TP2 Ar90.

⁵⁶Plutarch, *Symposium* 730e = DK 12A30 = Gr Axx39 = TP2 Ar45.

⁵⁷Aristotle, *Phys.* 203b7 = DK 12A15 = Gr Axx16 = TP2 Ar2; translation adapted.

Hippolytus repeats these words:

(...) a certain nature of the boundless (...) (which) surrounds all the worlds (φύσιν τινὰ τοῦ ἀπείρου... πάντας περιέχειν τοὺς κόσμους).⁵⁸

These texts are usually read as having a bearing on the boundless as a kind of stuff or shell outside the cosmos (περιέχειν). This interpretation seems to be confirmed by the way this word and its synonyms are used in the doxography on Anaximander to describe certain phenomena in the world. The first animals are surrounded (περιεχόμενα)⁵⁹ by a prickly bark, a sphere of flame grows around (περιφυῆναι)⁶⁰ the air about the Earth, the heavenly bodies come to be as circles of fire surrounded (περιληφθέντα)⁶¹ by air, and lightning and thunder are generated by winds surrounded (περιληφθέν)⁶² by thick clouds. However, with regard to the boundless ἀρχή, the combination with κυβερνᾶν, which means ‘to steer’ or ‘to rule’, makes a static interpretation invalid.⁶³ From the very beginning, the creative and inexhaustible power of nature (φύσις ἄπειρος) causes the coming to be of the world. As the principle of growth and movement it is continually present in everything that exists, ‘steering all things’. The ‘principle’ of the world, however, is not located outside, beyond the world. In that sense it can be compared with Anaximenes’ air, interpreted as cosmic breath. It is found in each and every thing and in that sense it is omnipresent and encompassing. The world itself and everything within it comes to be and perishes according to the ordering of time through the manifestation of boundless nature. The deathless and imperishable φύσις ἄπειρος is the ultimate expression of the magnificence of life. It is a real expression of divinity.

⁵⁸Hippolytus, *Ref.* I.6.1 = DK 12A11 = Gr Axx10 = TP2 Ar75.

⁵⁹Aetius, *Plac.* V.19.4 = DK 12A30 = Gr Axx37 = TP2 Ar67.

⁶⁰Pseudo-Plutarch, *Strom.* 2 = DK 12A10 = Gr Axx19 = TP2 Ar101.

⁶¹Hippolytus, *Ref.* 1.6.4 = DK 12A11 = Gr Axx20 = TP2 Ar75.

⁶²Aetius, *Plac.* III.3.1 = DK 12A23 = Gr Axx30 = TP2 Ar63.

⁶³Cf. Kahn (1994, 112).

Chapter 8

Ordering of Time

Thus far we have mainly shown how, according to Anaximander, the creative power of boundless nature works through the coming to be of the cosmos and all that it contains. But apart from creation, there is also destruction and perishing. In contrast to boundless nature, existing things that have been generated in this process are not boundless but limited in place, time, and capacity. Not only do they come into being; they also perish.

We take ‘perishing’ to mean real destruction and not alternation of one kind of stuff into another. Although in the doxography mutual changes of elemental bodies or opposites are well attested, we must understand them not as mere alteration or change of quality of some underlying principle (which would introduce the Peripatetic meaning of substance), but as a radical process. We agree with Graham that “the birth of *X* is a death of *Y*, and vice versa.” When something new is generated from previous stuff, the successor is a new thing.¹

According to us, it does not make much sense to apply to Anaximander any conception of monism or pluralism. This distinction was introduced after Parmenides when questions about unity, change or identity and difference had been asked. With this proviso, we can follow Graham in stating that Milesians were not monists.² In Ionian philosophy we see rather a plurality of stuffs. All things were generated by boundless nature which is not some kind of stuff or substance but the generating power present within them.

Nature, as the power that brings things into existence and makes them move and grow, is, so to speak, the dimension of time added to the otherwise dead world. Aristotle, in listing five reasons for supposing the existence of something boundless (τι ἄπειρον), names time as the first:

The belief in some infinite principle would seem to arise from five considerations: from the concept of time – for this is infinite.³

¹Graham (2006, 51–52, 2010, 189).

²Graham (2006).

³Aristotle, *Phys.* 203b15–26 = DK 12A15 = Gr Axx16 = TP2 Ar2.

According to Aetius, the very reason why Anaximander's principle is called boundless is to guarantee that generation will go on eternally:

Thus he (sc. Anaximander) tells us why it (sc. the source of existing things) is boundless: in order that the coming to be which occurs may never cease.⁴

Therewith, he repeats Aristotle's third reason for the postulation of something boundless:

And also because only then coming to be and perishing will not cease, when there is an infinite source from which what comes to be is derived.⁵

In these texts the infinite source is conceived of as a material substance, an unlimited store—an interpretation we argue against in this book. But even then, it must be infinite in time as well, since it causes generation that never ceases. In the text just preceding the five reasons for the infinite, Aristotle expressly and repeatedly stresses the temporal aspect of a boundless origin, mentioning Anaximander explicitly:

Furthermore, (the boundless) would be without coming to be (ἀγεννητος) and perishing (ἄφθαρτος) (...). And this is the divine, for it is deathless (ἄθάνατος) and imperishable (ἀνώλεθρος), as Anaximander says.⁶

Hippolytus repeats Aristotle in his own words:

(Anaximander said) that the origin and element of existing things is a certain nature of the boundless (φύσιν τινὰ τοῦ ἀπείρου), from which come to be the heavens and the world (κόσμος) in them. And this is everlasting (αἰδίος) and ageless (ἀγήρως) (...).⁷

Both authors especially stress the aspect of time which characterizes τὸ ἄπειρον in its role of ἀρχή as distinct from temporally finite things. The Diels/Kranz edition takes Aristotle's ἄθάνατος and ἀνώλεθρος and Hippolytus' ἀγήρως as direct quotations (12B2). While in Aristotle's case the phrase appears in the nominative of the neuter gender and relates to a neuter substantive τὸ ἄπειρον, in Hippolytus' text the subject is the feminine noun φύσις. What is remarkable is the parallel with Homer, who uses the phrase ἄθάνατος καὶ ἀγήρως several times in connection with gods.⁸ Similarly, Euripides states that scientific research includes "observing the ageless order of immortal nature", ἄθανάτου καθορῶν φύσεως κόσμον ἀγήρων.⁹ Diogenes of Apollonia uses the phrase αἰδίων καὶ ἄθάνατον to indicate his principle, the air.¹⁰

⁴Aetius, *Plac.* 1.3.3 = DK 12A14 = Gr Axr18 = TP2 Ar53.

⁵Aristotle *Phys.* 202b18–19 = DK 12A15 = Gr Axr16 = TP2 Ar2. Aristotle argues against this in *Phys.* 208a8–11 = DK 12A14 = TP2 Ar4, not in Gr.

⁶Aristotle, *Phys.* 203b15 = DK 12A15 = Gr Axr16 = TP2 Ar2.

⁷Hippolytus, *Ref.* I.6.1 = DK 12A11 = Gr Axr10 = TP2 Ar75.

⁸Homer, *Il.* II.447, VIII.539; *Od.* V.218.

⁹Euripides, fr. 910 Nauck. = DK 59A30.

¹⁰Simplicius, *In Arist. Phys.* 153.19 = DK 64B7 = Gr Dgn10; 153.20 = DK 64B8 = Gr Dgn11.

And if Aristotle's above-quoted argumentation reflects Melissus' way of thinking at least in part, it is interesting to note that in Melissus' text Hippolytus' term αἰδίων appears when he says that "nothing that has a beginning and an end is either everlasting (αἰδίων) or unlimited".¹¹ What may have also played a role is the possible replacement of the epic ἀθάνατος by the non-personal αἰδῖος. Pseudo-Plutarch, in the first phase of his cosmogony, speaks of ἐκ τοῦ αἰδίου (which we render in Chap. 6 as 'since days of old') and of ἐξ ἀπείρου αἰῶνος ('from an infinite time past').¹² Whatever words Anaximander may have actually used, Aristotle and the doxography make it unquestionably clear that Anaximander's principle is eternal.¹³

Several authors have drawn attention to the importance of the temporal dimension of Anaximander's ἀρχή.¹⁴ Nevertheless, Dancy points out that "there is no attested case of the term ἄπειρον meaning 'temporally unlimited' in [Anaximander's] period".¹⁵ He concludes that not only Aristoteles and Theophrastus, but also Anaximander himself "had to convey the temporal boundlessness of his ἀρχή by using such words [like ἀθάνατος, ἀνώλεθρος, αἰδῖος, and ἀγήρωες]".¹⁶ He notes that Classen finds its first appearance in this sense of temporal boundlessness in a fragment of Melissus:

Now since it did not come to be, but is, it always was and always will be, and it has no beginning nor end, but is unlimited (ἄπειρόν ἐστιν). For if it came to be, it would have a beginning (for it would have begun to come to be at some time) and an end (for it would have ceased coming to be at some time). But since it did not begin nor end, it always was and always will be, <and> it has no beginning nor end. For it is not possible for something to be always which does not altogether exist.¹⁷

Dancy, however, argues that "it is not, in fact, at all clear that Melissus is employing ἄπειρον in a temporal sense". According to him, the first temporal use of the word without any apparent spatial connotation is in Aristotle *De gen. an.* 742b21–23.¹⁸ We think Dancy is excessively ingenious here. Melissus clearly draws the conclusion "it is ἄπειρον" from "it has no beginning nor end", meaning "it would not have begun to come to be at some time and will not have ceased coming to be at some time". The fact that he uses the words αἰεί and αἰδίων for the

¹¹Simplicius, *In Arist. Phys.* 9.110.3 = DK 30B4 = Gr M1s12.

¹²Pseudo-Plutarch, *Strom.* 2 = DK 12A10 = Gr Axr19 = TP2 Ar101.

¹³Guthrie (1985, 91) footnote 1, Cherniss (1951, 326) footnote 41, Lebedev (1978, I, 43–44) footnote 49, 50 and West (1971, 79) footnote 1.

¹⁴See, e.g. Classen (1962, 163 = 1986, 94), Dancy (1989, 166–169), Graham (2006, 30–31), Stokes (1976, 12–18) and Dührsen (2013, 282–284).

¹⁵Dancy (1989, 166 and n. 49). See Classen (1962, 163, n. 27) = 1986, 96 and 106, n. 27).

¹⁶Dancy (1989, 167).

¹⁷Simplicius, *In Arist. Phys.* 9.29.22–26; 109.20–25 = Gr M1s10 = DK 30B2.

¹⁸Dancy (1989, 166, n. 49).

first and ἄπειρος for the second in other texts,¹⁹ when speaking about its being both temporally and spatially infinite, is just a matter of style. Obviously, he does not like the juxtaposition of expressions like ἄπειρον κατὰ μέγεθος—ἄπειρον κατὰ χρόνος, or ἄπειρον τῷ μεγέθει – ἄπειρον τῷ χρόνῳ.²⁰ We may conclude that even if in Anaximander's time the word ἄπειρος had not yet meant 'eternal', his principle must have been conceived of as eternal.

The dimension of time engenders a dichotomy between everlasting boundless nature and finite mortal things. From the very beginning of his argument, Aristotle, in the text at the end of which he mentions Anaximander, makes it clear that there is a sharp distinction between the ἀρχή, being temporally infinite, and the other existing things, being temporally finite. Each thing that the everlasting principle generates is necessarily temporally finite, for otherwise it would itself be a principle:

Everything is either a source or derives from a source, but there is no source of the boundless (...) for what comes to be must reach an end, and there is an end of every perishing.²¹

Hippolytus concludes his above-quoted text by contrasting the eternity of 'a certain nature of the boundless' with the temporal finitude of existing things, to which only a determinate period of existence is assigned:

He speaks of time as though there were a determinate period of coming to be and existing and perishing.²²

The text of Hippolytus runs parallel with, and can be seen as a kind of paraphrase of, Simplicius' famous passage, which is usually considered to contain lines quoted from Anaximander's book. Even though we do not see any difficulty, according to Kahn and Lebedev it is somewhat unclear.²³ As the juxtaposition of the texts of Simplicius and Hippolytus shows,²⁴ the words "he speaks of time... etc." echo Simplicius' "according to the order of time". In the same sense, Hippolytus links time and the finitude ("a determinate period") of things. Let us read Simplicius' text:

¹⁹E.g. Simplicius, *In Arist. Phys.* 9.109.29–32 (31–32) = DK 30B3 = Gr M1s11, and 110.2–4 (3–4) = DK 30B4 = Gr M1s12.

²⁰Simplicius, when speaking about Anaximander and other Presocratics, uses ἄπειρον κατὰ μέγεθος or ἄπειρον (τῷ) μεγέθει (and ἄπειρον κατὰ πλήθος or ἄπειρον τῷ πλήθει) several times. See, e.g., *In Arist. Phys.* 9.140.34–141.8 (7) = DK 29B1 = Gr Zno7; 9.22.9–13 = TP2 Ar162, not in DK and Gr; 9.26.31–27–23 = TP2 Ar164, not in DK and Gr; 9.458.19–26 = TP2 Ar173; 10.1121.5–9 = TP2 Ar178, not in DK and Gr; 10.1188.5–10 = TP2 Ar179, not in DK and Gr; *In Arist. De caelo* 7.202.11–18 = TP2 Ar182, not in DK and Gr.

²¹Aristotle, *Phys.* 203b6–28 = DK 12A15 = Gr Axi16 = TP2 Ar2.

²²Hippolytus, *Ref.* I.6.1 = DK 12A11 = Gr Axi10 = TP2 Ar75.

²³Cf. Kahn (1994, 35) and Lebedev (1978, I, 44–45).

²⁴Cf. KRS (2007, 108).

Whence existing things come to be, thence too their destruction (φθορά) takes place, **as is the natural order of things** (κατὰ τὸ χρεών). **For they** (αὐτὰ) **execute the sentence upon one another** (ἀλλήλοις) – **the condemnation for the crime – according to the order of time** (κατὰ τὴν τοῦ χρόνου τάξιν).²⁵

The interpretation of these lines is the most controversial topic in the study of Anaximander. The first words can easily be understood as an Aristotelian clause inserted by Theophrastus, supposing that what follows is an illustration of it; indeed, several scholars argue that this is the case. Therefore, we have put in bold only those words that most probably somehow go back to Anaximander himself. When we try to understand this text, perhaps the main difficulty is that it does not immediately show noticeable connections with what we know of Anaximander's cosmology from the doxography. In particular, the quasi-juridical language is completely unique. Moreover, if the first line is somehow suspect, we cannot say for sure what the words αὐτὰ and ἀλλήλοις are meant to refer to. In other words, we do not know what kinds of things are said to be in a sort of juridical relation to one another.

It is not generally noticed that predominantly these lines do not refer to the generation of things, but to their perishing or destruction (φθορά). They contain, so to speak, described in a kind of juridical terminology, the other half of the story after their being generated. Speculation about the interpretation of Anaximander's words started with Theophrastus, who thought it was about the opposites being destructive towards one another, and it has not stopped since then.

In the previous chapter, we argued that the role of opposites in Anaximander, if they play a role at all, is mainly not one of mutual destruction, controversy, or strife, but rather one of working together, cooperation, and mutual support. Opposites or opposite forces are not even mentioned in the fragment, but only in Simplicius' explanation which goes back to Aristotle via Theophrastus. Kahn's influential interpretation of the fragment as a cyclic process of opposites is a remote descendant of it: "(...) it is the opposing principles, and these alone, which are implied by the neuter plural pronouns ἐξ ὧν, εἰς ταῦτα, αὐτά, ἀλλήλοις. The wet is generated from the dry, the light from the darkness. But the birth of such a thing involves the death of its reciprocal, and this loss must eventually be repaired by a backward swing of the pendulum".²⁶ Finally, with a slight modification, "(...) the judgement of Simplicius must be accepted".²⁷ Our analysis in the previous chapter of the relevant cosmological, meteorological, geological, and evolutionary texts does not support this interpretation. There is no doxographic evidence that, according to Anaximander, the wet is generated from the dry. Perhaps in one specific case one may say the reverse: the Sun (hot, dry) is nurtured – although not generated – by winds and vapors (wet, cold).

²⁵Simplicius, *In Arist. Phys.* 9.24.13 = DK 12B1 = Gr Axx9 = TP2 Ar163 (our translation).

²⁶Kahn (1994, 182–183).

²⁷Kahn (1994, 195).

The more mundane interpretation is that the text of the fragment is not about the cyclic strife between opposites, but about the destruction of existing things (when αὐτά is taken to mean τὰ ὄντα). Generally speaking, existing things are not opposites, although they can be each other's opponents. The text of the fragment contrasts the fate of temporally finite things with the eternal character of the power of boundless nature. The fragment expresses the temporal character of everything that exists: after a certain time (κατὰ τὴν τοῦ χρόνου τάξιν) destruction is their fate (κατὰ τὸ χρεών). The words κατὰ τὴν τοῦ χρόνου τάξιν, echoing κατὰ τὸ χρεών, can simply be read as meaning "that each thing has a natural existence of fixed duration (...) all cosmic change (...) has its appointed time".²⁸ The finitude of whatever things the fragment is about is not said to be spatial, but temporal: each has its allotted time.

Pseudo-Plutarch, however, reads Anaximander's words in a completely different way. The text in which he presents τὸ ἄπειρον as the alleged cause of coming to be and perishing also contains several references to time. In Chap. 6, we argued against the usual interpretation of the term τὸ αἰδίον as another word for τὸ ἄπειρον in favour of reading the expression as 'since days of old'. Shortly before this, Pseudo-Plutarch also reports that 'all the world-orders, which are countless', are separated from the boundless. He goes on to say of Anaximander:

(...) he made clear that perishing and much earlier coming to be of all these recurring [world-orders] takes place from an infinite time past (ἐξ ἀπείρου αἰῶνος).²⁹

From this it seems as if Anaximander wanted to say that not only does the process of generation never stop, but it also has no beginning in time. As such this is right, as we will see later in this chapter, but the text of the fragment says something quite different: 'According to the order of time' (κατὰ τὴν τοῦ χρόνου τάξιν) is definitely not the same as 'from an infinite time past' (ἐξ ἀπείρου αἰῶνος).

Everything that is created by the power of boundless nature eventually, and necessarily, comes to an end. When we take αὐτά to refer to τὰ ὄντα, what the fragment explains to us is that the enactors of this mutual (ἀλλήλοις) destruction are the existing things themselves. Why Anaximander chose to describe this obliterating process in terms of crime and sentencing is not clear from the text itself, nor from its context. Apparently, the life span assigned to each existing thing is compared with a verdict and the executors are the ὄντα themselves.

Usually the quasi-judicial part of the text is read as something like "they give recompense and pay restitution to each other for their injustice", meaning that, 'tit for tat', a kind of juridical mechanism restores balance. Here again, Kahn is one of the foremost protagonists: "The[se] parts belong together in a unified whole, a community whose balance of power is maintained by periodic readjustments, in accordance with that general law of astronomical cycles which Anaximander

²⁸West (1971, 83).

²⁹Pseudo-Plutarch, *Strom.* 2 = DK 12A10 = Gr Axx19 = TP2 Ar101; our translation.

conceived of as an immutable τάξις of Time”.³⁰ The equilibrium of the Earth is, according to Kahn, the ultimate paradigm of this universal balance of powers.³¹ One may wonder, however, whether the equilibrium of the Earth is an instance of what is documented in Anaximander’s fragment: at no point do the celestial wheels and the Earth take a legal case against each other. As argued in the previous chapter, their coexistence is rather a kind of cooperation. The image that Anaximander is said to have used in this context is that of the bark protecting the tree. It can be argued that Aristotle, who ridicules the equilibrium argument, ascribes it to Anaximander in order not to attack his master Plato directly, as Simplicius had previously surmised.³² The text of the fragment does not speak of restoring balance but of the destruction of things when their appointed time is up. We have already argued that it is more pertinent to follow Hippolytus’ reading of κατὰ τὴν τοῦ χρόνου τάξιν, meaning that for each thing there is a “determinate period of coming to be and existing and perishing”.

Moreover, by writing Time with a capital, Kahn makes it into a kind of second principle next to the Boundless. However, in fragment B1, there is no specific reason why χρόνος should be understood as the personification of a Time-god or even as ‘Time’—with a capital—as an arbiter, or “the great Court of Time”.³³ As we have previously argued, the words κατὰ τὴν τοῦ χρόνου τάξιν can simply be taken to mean “that each thing has a natural existence of fixed duration (...) all cosmic change (...) has its appointed time”.³⁴ There is also no intrinsic reason whatsoever to add to Hippolytus’ interpretation: “And as in Pherecydes, Time itself is a divine agent”, or “by the decree of Time”, as West does.³⁵ This would elevate Time to a second principle, a divine agent, next to the Boundless. An analogous move can already be found in the Appendix of Solmsen’s article on ‘Anaximander’s Infinite’, where he advances the idea that Anaximander, next to his principle, the Infinite, which is eternal and immortal, may have spoken of ἄπειρος χρόνος or ἄπειρος αἰών, meaning therewith “the time and duration of his Infinite” or “the life of his deity”.³⁶ He, too, seems to regard χρόνος as a principle next to the ἄπειρον, for on the same page he says, rather cryptically: “the relation between this αἰών of the Infinite and the χρόνος operating in the cosmological scheme could (...) be defined by the verb περιέχειν.”

If the fragment is about the mutual destruction of existing things when their appointed time is up, the word ἀλλήλοις that we translated as “upon one another” can best be understood through the analogy of Shakespeare’s *Othello*, Act 1, Scene 3:

³⁰Kahn (1994, 188).

³¹Ibidem.

³²Simplicius, *In Arist. De caelo* 7.532.2–21 = TP2 Ar189; not in DK and Gr. See also Couprie (2011, 109) and Fehling (1994, 144–145).

³³See Kahn (1994, 179) and Mourelatos (2008, 152).

³⁴West (1971, 83).

³⁵West (1971, 83).

³⁶Solmsen (1962, 129).

“cannibals who eat each other”. The meaning there obviously is not that one cannibal eats the other and that in recompense the other eats the first, but that cannibals like to eat, or are used to eating, human flesh. In the same sense, Anaximander’s words say that things are destructive to each other or, in other words, that they are temporal or mortal, and not everlasting, like boundless nature, and that they themselves are the actors of ongoing annihilation. Moreover, just like the cannibals, although they are each other’s opponents they are not each other’s opposites. Apparently, Anaximander looked upon the relation between existing things not only as one of cooperation, as described previously, but also as one of mutual destruction.

There is one example of that destructive relation mentioned in the doxography, and it is the more interesting because it concerns the eventual collapse of the world as such. In Chap. 7, we described the apparently peaceful coexistence of Sun and moisture: the heat of the Sun has a generating effect on the moisture, generating winds and vapors that protect us from that heat. In their turn, these vapors feed the Sun (we must think here of the fire inside the celestial wheels), and the wind that results from the Sun heating the moisture makes the Sun move. The heat of the Sun is shielded by moisture and air (we may think of the condensed air that surrounds the celestial wheels, as well as of clouds and mist). But this shield does not last forever. The heat of the Sun always remains a looming danger, eventually proving devastating to the moisture itself:

(...) and if the moisture and density of the air were not present, which separates the flame of the Sun from living things, the Sun would burn up everything that exists.³⁷

That which, in the first instance, represents a peaceful exchange between moisture and Sun finally proves devastating. There is no reason why the fire inside the celestial wheels cannot eventually die out, like all other fire, thus initiating the collapse of the whole cosmos. And even before that happens, the heat of the Sun completely dries up all moisture present in the world. The sea, which is itself a remnant of the primordial moisture, and all moisture needed for life dry up:

The whole region of the Earth was moist at first, but being dried out by the Sun (...) the sea is diminishing as it dries out and finally some day it will be completely dry.³⁸(...) what is left of the primeval moisture in the hollow places of the Earth is the sea. Accordingly it continually diminishes as it is dried out by the Sun and finally some day it will be dry. Those who held this view, as Theophrastus reports, were Anaximander and Diogenes.³⁹

Although it is not said in so many words in the doxography, the inevitable consequence is that the Sun signs its own death sentence, as it finally destroys the power that feeds it and makes it move. Perhaps Anaximander’s fragment meant to describe precisely this ultimate catastrophe and no more than that: the Sun finally

³⁷*Turba*, Sermo I.38–40 = Gr Axr29 = TP2 Ar270, not in DK.

³⁸Aristotle, *Meteor.* 353b6–11 = DK 12A27 = Gr Axr34 = TP2 Ar8.

³⁹Alexander, *In Aristot. Meteorolog.* 3.2, 67.3–12 = DK 12A27 = Gr Axr35 = TP2 Ar84.

extinguishes the moisture, and as a sentence for this crime, the moisture can no longer feed the Sun. In that case we can make sense of Anaximander's juridical metaphor: After ages of peaceful and cooperative coexistence, the Sun no longer takes into account the finitude of its own source—the moisture. In turn, moisture punishes this crime by no longer feeding the Sun. Or the other way round, the moisture is no longer capable of supplying the Sun with enough nutrition, thus violating their age-long cooperation; a crime which the Sun punishes by completely drying up the moisture. What the two opponents consider a crime, however, is nothing other than their ordained fate (κατὰ τὸ χρεόν), since they are finite, just like all generated things. The moisture may be a source for the Sun, but it is not an everlasting source in the way that the power of boundless nature is. Rather, it is a finite source that inevitably and eventually dries up, dooming the heat of the Sun to die out too. In this way, both the moisture and the Sun assume the behavior of the other to be the termination of their contract of partnership. Both have an allotted time span (κατὰ τὴν τοῦ χρόνου τάξιν), since as they are generated they are also finite. If this interpretation has a grain of truth to it, then the word ἀλλήλοις should not be interpreted as indicated above, but in terms of real reciprocity: A kills B and B kills A, just like two pugilists knocking each other out at the same time.

However this may be, as far as we may conclude from the doxographic material, the conflicting character of cosmic forces is something that can remain hidden for a long time, even for ages, behind the mask of creative and helpful cooperation. Generally speaking, the opponents work together, and this cooperation can be explained as an exchange of services: vapors nourish the Sun and, in turn, protect the Earth from the heat of the Sun. But in the last stage of the cosmos, Sun and moisture, which have been mutually supportive for a long time, prove to be antagonistic.

When the Sun dries out the sea, depriving itself of nourishment, the whole cosmic game is over. Even the world as such, which is generated at a point in time, finally perishes, apparently as the final result of this mutual destruction. And even then, there is the much-debated question whether this finally results in a new world followed by another *ad infinitum*, or indeed whether Anaximander himself believed in an infinite number of successive worlds. As such, the idea is not incompatible with that of boundless nature as a universal vital force, an everlasting source that guarantees endless generation; not even with the idea of an infinite number of coexisting worlds. We might even argue that if only one world were to be finally annihilated, the power of boundless nature could not be boundless.

The boundlessness of nature then is a strong argument for the idea of infinite, successive, worlds, as abundantly attested in the doxography.⁴⁰ Obviously not every author would argue with that idea, however. As KRS solemnly declare, it “would be contrary both to the whole mythical background of Greek thought and to the dictates

⁴⁰For a good overview of the relevant texts and interpretations, see McKirahan (2001).

of common sense (...) and their appearance in Anaximander would be surprising”.⁴¹ And because boundless nature, being the source of generation, is itself ungenerated (ἀγέννητος), as argued in a text in which Anaximander is mentioned,⁴² not only will there be an infinite number of worlds in the future, but there must have been an infinite number of worlds in the past. This seems to be Pseudo-Plutarch’s real meaning when writing of ‘all these recurring [world-orders]’ which ‘take place from an infinite time past (ἐξ ἀπείρου αἰῶνος)’.⁴³

Perhaps the best way to imagine this succession of infinite worlds is to envision the same world as originating again from the debris of the old, like the phoenix from the ashes. When the world perishes, having exhausted its due time, a new world must arise from the spontaneous activity of the boundless power of nature, probably by the expulsion of a new γόνιμον. On the one hand it is a different world, but on the other it may be called the same, since it originates from the same principles and from the same stuff. It might even be argued that this idea preserves an original Ionian conception. In this sense, Simplicius speaks about “different periods of time” in connection with Anaximenes, Heraclitus, Diogenes, and the Stoics:

Everyone who says there is always one world, but it does not stay always the same, but becomes different at different periods of time, makes the one world generable and perishable – as do Anaximenes, Heraclitus, Diogenes, and later the Stoics.⁴⁴

Simplicius shows that for Heraclitus the world after its termination is once more resurrected from fire “in certain periods of time”:

Heraclitus also states that at one time the world is consumed by fire, and then from fire it is created again in certain periods of time, where he says, kindling in measures and being quenched in measures. Later the Stoics also adopted this opinion.⁴⁵

A similar idea seems to have been preserved in a report on Xenophanes, although the last words “and this change occurs in all the worlds” are somewhat confusing:

Xenophanes thinks a mixture of earth with sea occurs and in time earth is dissolved by the moist, claiming to provide as evidence, the fact that sea shells are found in the midst of earth and in mountains, and in the quarries of Syracuse impressions of fish and seaweed have been found, and in Paros the impression of coral [or: bay] in the depth of a rock, and in Malta fossils of all sea creatures. He says these things happened when all things were covered with mud long ago and the impressions in the mud dried out. The human race becomes extinct when earth is carried down into the sea and becomes mud, and then the process begins again, and this change occurs in all the worlds (πᾶσι τοῖς κόσμοις).⁴⁶

⁴¹KRS (2007, 122–123).

⁴²Aristotle, *Phys.* 203b6–10 = DK 12A15 = Gr Axi16 = TP2 Ar2.

⁴³Pseudo-Plutarch, *Strom.* 2 = DK 12A10 = Gr Axi19 = TP2 Ar101; our translation.

⁴⁴Simplicius, *In Arist. Phys.* 1121.12–17 = DK 13A11 = Gr Axi9 = TP2 As149; translation slightly adapted.

⁴⁵Simplicius, *In Arist. De caelo* 294,4–7 = DK 22A10 = Gr Hct50.

⁴⁶Hippolytus, *Ref.* I.14.4–6 = DK 21A33 = Gr Xns59; Graham translates the last words as “in all the world-orders”.

Here the dialectic between ‘the same’ and ‘different’ begins to play a role. On the one hand, with the above mentioned concept of mutual changes as a radical process in mind, we can say that if earth is dissolved by the moist in order to reappear again, it must be a different earth than before. Therefore, the process must result in a different world as well. On the other hand, because the whole process of generation starts over again, Xenophanes is said to hold that the world is everlasting. It is the same but different world which is regenerated from its ashes:

the world is without coming to be and perishing and is also everlasting (ἀγένητον καὶ αἰδίδιον καὶ ἄφθαρτον τὸν κόσμον).⁴⁷

Similarly, we can also understand that the same source says two things that seem to exclude one another:

Anaximander, Anaximenes, Anaxagoras, Archelaos, Diogenes and Leucippus thought the world is transient (φθαρτὸν τὸν κόσμον).⁴⁸

Anaximander, Anaximenes, Archelaos, Xenophanes, Diogenes, Leucippus, Democritus and Epicurus held that in each revolution infinite worlds [originate and perish] in the boundless.⁴⁹

Whereas the idea of an infinite series of succeeding worlds seems to be the logical consequence of the image of boundless nature as a source that never gives in, the idea of the infinity of coexisting worlds is probably a late projection from the atomists, who argue that space is infinite. These innumerable coexisting worlds are not the stars, as one might think from our modern cosmological conception. In ancient Greek cosmology, the stars belong to our world or cosmos. As Furley rightly says: “Both the Atomists, who believed in the infinite universe, and the Aristotelians, who did not, agreed that our world is itself a finite system, bounded by the sphere of stars”.⁵⁰ This means that the κόσμοι ἄπειροι are not only infinite in number, but also that they lie beyond our horizon of experience. The argument that the ‘infinite worlds’ cannot be identified with the stars holds *a fortiori* for Anaximander, who places the stars below the Sun and the Moon.

Gregory once more revives the possibility, already defended in KRS, that there is one world forever on the basis that “there is no reason, either ethical or physical, for Anaximander’s *kosmos* to go into decline. (...) There is no indication that the apeiron ceases in this activity (sc. steering the *kosmos*) once the *kosmos* is formed, though of course it may be modified”.⁵¹ He argues that “the generation of something with good order can be just, without any debt to repay. That Anaximander envisaged something with good order is beyond doubt if we consider the centrality and stability of the Earth, its suitability for life and the precise arrangement of the

⁴⁷Aetius, *Plac.* II.4.11 = DK 21A37, not in Gr; our translation.

⁴⁸Aetius, *Plac.* II.4.6 = DK 12A17 = TP2 Ar144, not in Gr; our translation.

⁴⁹Aetius, *Plac.* II.1.3 = DK 12A17 = TP2 Ar145, not in Gr; our translation.

⁵⁰Furley (1987, 136); see also Furley (1989, 2): “(...) no one in classical antiquity believed that the world is infinite.”

⁵¹Gregory (2007, 37). See also KRS (2007, 122–123).

heavenly bodies. The destruction of this order would be unjust (...)”.⁵² Here, we disagree with Gregory and KRS mainly because in that case something other than boundless nature, i.e. that which is created, would be indestructible and thus boundless. This would contradict the fundamental distinction between that which is boundless and the finite things that are generated by it. Moreover, Aetius reports clearly in the text quoted above that Anaximander thought the world to be transient (*φθαρτὸν τὸν κόσμον*). Even the doxography hints at the end of our cosmos, when the Sun, after drying up the Earth and robbing itself of all nourishment, is itself extinguished by necessity. This event is described as definitive for our cosmos, but there is no intrinsic reason why the death of the cosmos should not be followed by the expulsion of a new *γόνιμον*, from which a sphere of flame can once more grow around the air which is around the Earth, like the bark around a tree. On the contrary, the boundlessness of nature seems to guarantee this ongoing process.

⁵²Gregory (2007, 36).

Conclusion

If the early philosophers are said to have written about φύσις, it necessarily means that they saw everything under the aspect of growth. We have argued that Anaximander adorned φύσις with the epithet ἄπειρος. Thus understood, ‘nature’ can be called ἄπειρος in three ways. First, this creative power is boundless in the sense of being everlasting, deathless, and imperishable. At the very beginning it was the cause of the coming to be of the world, from the generation of the heavens and the countless worlds, the Earth, the Sun, the Moon, and the stars, until the generation of plants, animals, and man. As the principle of growth and movement it is still present in everything that exists. It is that which remains when the individual things, from worlds to living creatures, perish. Second, the creative power of nature is boundless in the sense of it being spatially omnipresent. It pervades the whole of creation, from the farthest celestial bodies to the tiniest prickly bark or shell. The one and only power of nature, as it were, expresses or shows itself in each individual being. Boundless nature is not something outside the world, nor is it something that is solely charged with the task of creating the world. On the contrary, it is always and everywhere present inside the world as the power that makes everything generate, move, change, and modify. Third, the creative power of nature is also ἄπειρος in the sense of it being ‘unexperienced’, or ‘beyond experience’. What we are able to observe in the world is the multitude of individual things, but we can only perceive the creative power through results: the birth of a child, the flight of a bumble-bee, the metamorphosis of a butterfly, the violence of waves on the sea, the regular orbits of the celestial bodies. Heraclitus’ words “nature loves to hide” can be taken as an expression of Anaximander’s conception of φύσις as the everlasting, omnipresent, and hidden (‘unexperienced’) creative power: one which is not only responsible for the genesis of things in general, but which is also present in everything, making them generate, move, change, and modify.

Our interpretation of Anaximander’s principle as ‘the power of boundless nature’ yields a reading of his cosmogony in biologizing terms, of which ‘separation’ (to be understood as ‘birth’) is the most conspicuous. Due to the spontaneous activity of the boundless power of nature, a seed was separated or expelled as the first tangible proof of generation, and out of its differentiation the entire living, animate world came to be. The same image of ‘separation’ occurs in the description

of several kinds of events, such as the separation of Heaven and Earth, the coming to be of the celestial bodies, and the origin of winds.

Anaximenes' principle is reported to be 'boundless air', which, understood as 'cosmic breath', can be viewed as his translation of Anaximander's 'boundless nature'. Anaximenes is said to have called air 'god' and to have made 'gods and divinities' dependant on air for their creation.¹ Stobaeus, by whom this has been handed down, adds the clarifying comment: "It is necessary in the case of such utterances to understand that they indicate the powers pervading the elements or bodies".² This remark holds for Anaximander as well, for he is said to have called the boundless 'deathless and imperishable', which, according to Aristotle, indicates 'the divine' (τὸ θεῖον).³ 'The divine' is boundless nature which 'contains all things and steers all things'. Thus, Anaximander by placing a religious tradition in a new context, spawned what we now call 'philosophy'.

We certainly do not pretend to have spoken the final word on Anaximander's ἄπειρον—if indeed it is possible at all to say anything conclusive about a philosophical text—but at least we hope to have contributed to a better understanding of it. Even Kahn, the most influential modern commentator on Anaximander's cosmology, admits at the end of his book that "the ἄπειρον of Anaximander cannot be reduced to material or to quantitative terms. It is not only the matter but *the motor of the world, the living, divine force of natural change*".⁴ It might have become clear that we do not agree with Kahn's interpretation of the ἄπειρον as "a huge, inexhaustible mass, stretching endlessly in every direction", but the words we have italicized are a compact rendering of our interpretation of ἄπειρος φύσις as the boundless power of nature.

¹Augustine, *De civ. dei.* VIII.2 = DK 13A10 = Gr Axs37 = TP2 As104; Hippolytus, *Ref.* I.7.1 = DK 13A7 = Gr Axs12 = TP2 As56.

²Aetius, *Plac.* I.7.13 = DK 13A10 = Gr Axs38 = TP2 As119; translation slightly adapted.

³Aristotle, *Phys.* 203b14 = DK 12A15 = Gr Axr16 = TP2 Ar2.

⁴Kahn (1994, 238), our italics. The word 'motor', however, is not well-chosen to indicate the living, divine force of natural change.

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